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Original Articles.

A CONTRIBUTION TO THE SUBJECT OF RADIOTHERAPY AND PHOTOTHERAPY IN CARCINOMA, TUBERCULOSIS AND OTHER DISEASES OF THE SKIN.*

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CHICAGO.

Since 1894, when Finsen published his first paper on the value of the actinic rays in variola, and the year 1895, when Roentgen presented his historical paper to the Physico-Medical Society of Wurzburg, the literature of the general subject of radiotherapy and phototherapy has accumulated in geometric proportions. It is not the purpose of the present paper to survey this literature, but merely to present the results of our personal observations and experience in the management of cutaneous diseases by the modern method of light treatment. It is worthy of note, however, that while the present therapeutic use of the *x*-rays was first suggested as a result of accidents occurring in its use for diagnostic and other purposes, the light-treatment of Finsen and his followers is largely the direct and logical outcome of the work of earlier observers, who studied the influence of light in its various forms on certain phases of animal life.

Recent writers on the subject of phototherapy have made frequent references to the earlier work of (1) Averroës, Black, Waters, Barlow and others on the exclusion of light in the treatment of smallpox; (2) of Unna, Widmark and Hammer on the production of dermatitis and pigmentation by the chemical (violet) rays, and (3) of Duclaux, Downes and Blunt and others on the bactericidal influence of sunlight. Occasional mention is found, also, of the experiments of Graber, Dubois, Bert, Lubbock and others showing an influence of white light and of the violet rays on the movements of certain animals; but the broader and more fundamental researches in this fiel[1] by Von Sachs and Jacques Loeb have apparently been overlooked by medical writers. It is a matter of common observation that certain plants when left in a room lighter from one side only incline toward the source of light. Sachs[1] demonstrated that in plants lighted from one side only radial structures (stems and roots) bend until their long axes are parallel to the rays of light, and that dorsiventral structures (such as leaves) assume a position in which their surfaces are perpendicular to the light rays. Plants (or organs) which turned toward the light Sachs termed positively heliotropic, and those which turned from the light negatively heliotropic. He demonstrated the three following laws: (1) The orientation of a plant toward (or from) the source of light is determined by the direction of the rays. (2) Only the more refrangible rays (blue and violet) affect the orientation of plants. (3) Light of constant intensity acts continuously as a source of stimulation.

Jacques Loeb,[2] as the result of a large number of varied and carefully controlled experiments on nearly one hundred varieties of animals (including caterpillars, butterflies, plant lice, ants, fly larvæ, various hydroids, the larvæ of beetles, etc.), demonstrated an animal heliotropism which agrees with and conforms to Sach's laws for the heliotropism of plants. Loeb's experiments showed that certain animals when exposed to white light or to blue and violet rays from a single source exhibited the following phenomena: (1) They arranged themselves with their long axis parallel with the rays of light; that is, so that the rays fell at equal angles on symmetrical areas of the body. (2) The animals, if positively heliotropic, moved in the direction of the rays until as near as possible to the source of light, and remained there as long as the light did not fall below a minimum intensity, even though in following this course they passed from a lighter to a darker place. Negatively heliotropic animals obeyed the same law, but moved as far as possible from the source of light. In all his experiments Loeb recognized and carefully controlled all other factors, such as temperature, oxygen supply, geotropism and contact irritability, which might influence the movements of the animals. He experimented with headless animals and with those having no associating cerebral organs, and succeeded in making certain animals positively or negatively heliotropic at will, thus demonstrating that the movements were due not to a subjective sense or "intuition," but to direct stimulation of the muscles by the more refrangible (blue and violet) rays of light. The more nearly the angle at which the rays struck the surface approached a right angle the greater the stimulation; hence, orientation of the animal in the direction of the rays took place before the movement to or from the source of light. These experi-

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. W. T. Corlett, L. Duncan Bulkley and W. L. Baum. The records for the three following months of Cases 9, 10, 11, 13 and 15 have been included, in order to illustrate the danger of producing metastases and extension of the growth when treating carcinoma by radiotherapy, results not definitely presented in reading an abstract of the paper and consequently not discussed at the meeting.

1. Vorlesungen über Pflanzen-Physiologie. Leipzig, 1887.
2. "Der Heliotropismus der Thiere und Seine Uebereinstimmung mit dem Heliotropismus der Pflanzen." Würzburg, 1890.

ments show conclusively that the blue and violet light rays are directly stimulating to animal cells. The stimulus results probably from chemical changes, the exact nature of which is undetermined.

Recognizing the importance of Loeb's work, Benedict Friedlander[3] demonstrated by means of control experiments that the dermatitis and pigmentation resulting from exposure of the skin to sunlight, or to strong electric light, are produced wholly by the blue and violet (and not by the heat) rays. He thus confirmed the deductions drawn by Unna, Widmark and Hammer from their observations of sunburn and pigmentation in Arctic explorers and Alpine tourists. Friedlander suggested employment of the arc-light for therapeutic purposes.[4] The later development of a practical light-therapy by Finsen is a familiar subject to all readers of medical literature.

We shall not attempt a complete description of *x*-ray technic, as the subject is considered fully and in detail in the paper of Dr. Louis Schmidt. We use a current from induction coils having a voltage of from 10 to 12, and an amperage of from 1½ to 3 (rarely 4 or 5). The distance from the anticathode of the lesion exposed to the *x*-rays varies from 5 to 15 inches; the duration of the treatment from 3 to 10 minutes; the interruption from 800 to 1,200. For all superficial lesions a medium soft tube, for deeper tissues a moderately hard tube is used.[5] To protect the patient lead plates are employed. As a matter of convenience and for the better protection of the tissue immediately about the area treated we have been in the habit of exposing the latter through an opening in a small disc of lead, which can be closely fitted to the surface and fastened by means of pieces of tape or adhesive strips. A much larger flat sheet of lead, with an opening smaller than the area covered by the first lead disc, is supported by an adjustable rest between the patient and the tube. Each lesion treated has its individual small disc of lead, while the larger sheet answers for a number of areas of about the same size in the same or different patients. For treatment of lesions on the head this part is supported by a photographer's head-rest. By taking these precautions the action of the rays is limited as closely as possible to the part to be treated.

The subject of technic should not be dismissed without consideration of the susceptibility of different individuals to radiotherapy. Some recent writers state that there is no personal idiosyncrasy to the *x*-rays. The truth of such a positive statement is not demonstrable. We believe in personal idiosyncrasy to the *x*-rays, not only as a result of our experience with radiotherapy, but also because to no other therapeutic agent which we employ either internally or externally do all patients respond in the same manner or to the same degree. Every physician who treats cutaneous diseases knows that the skins of different individuals vary greatly in their susceptibility to the action of remedies and other influences, and that not infrequently a patient is found in whom a given remedy produces effects on the skin strikingly different in character or degree from that produced in the majority of individuals. For example, the effect of the sun's rays of a given intensity and duration varies greatly in different individuals, producing in one a slight pigmentation, in another an erythema, and in yet others a dermatitis of varying degrees of intensity. Occasionally an individual is found whose skin is so sensitive to the action of light that the slightest exposure to direct sunlight is followed by the formation of bullæ, small areas of necrosis and scars.

While it is undoubtedly true that in the past many of the untoward effects and the uncertain results obtained from the use of the *x*-rays have been due more to a lack of accurate technic (and possibly of skill on the part of the operator) than to personal idiosyncrasies, we are satisfied that different individuals vary markedly in the manner and degree in which they respond to this treatment. It is unquestionably true, also, that even the most skilled operator is unable, with our present knowledge, to determine with absolute precision the intensity and other qualities of the radiation employed by him in a given case. In other words, it is practically impossible so to regulate all the elements that two succeeding treatments shall have precisely the same value. Until we are better able to control all these elements, it will be a matter of conjecture as to how far the differing results may be due to variation of technic and how far to the readiness with which the patient responds to the treatment. Consequently, whether our variability in results be due to the uncertain susceptibility of the patient, or to the impossibility of regulating absolutely the value of each treatment, *the important fact remains that the only safe guide at present is the reaction obtained in each case.* The treatment in each case, therefore, must be begun gradually and pursued cautiously, and, as a rule, be suspended temporarily at the first indication of erythema or pigmentation. All experienced operators have learned that the effects of the radiation, as evidenced either in the production of a deep-seated dermatitis or in a progressive involution of the lesion treated, may continue for weeks or months after the last exposure to the rays.

Our interest in phototherapy was greatly stimulated by two visits made by one of us to Finsen's Light Institute in Copenhagen, where the opportunity was offered of making a careful examination, not only of the apparatus there employed, but also of patients in all stages of treatment and progress, including those actually relieved of their disease. There was also a large photographic collection showing the condition of patients before beginning and after treatment. A remarkable exhibition of patients and photographs at the International Congress of Dermatology in Paris in the year 1900 served as a further stimulus to the study of this subject. In phototherapy we use Sequeira's modification of the Finsen light. In it the carbons of the arc-light are brought within two or three inches of the area to be treated. Ten or fifteen minutes' exposure thus produces as much reaction as an hour's exposure by the original Finsen apparatus. The patient is protected from the light by a hollow shield, in the center of which are two rock-crystal lenses, front and back, between which cold water constantly circulates and absorbs all heat rays. The part to be treated is rendered anemic by pressing it firmly on the face of the front lens. The reaction after treatment with the lamp occurs in from six to twenty-four hours, and may vary in degree from an erythema to a vesicular or bullous dermatitis. No inflammation of tissue deeper than the skin is produced. The induced inflammation usually

3. Biol. Centralbl., 1893, xiii, p. 498.

4. For assistance in searching the literature of this subject we are indebted to Dr. Martin Fischer.

5. During the six months which have elapsed between the writing and the publication of this paper the writers have used tubes somewhat harder than those indicated in the text, and find them more efficacious and on the whole safer.

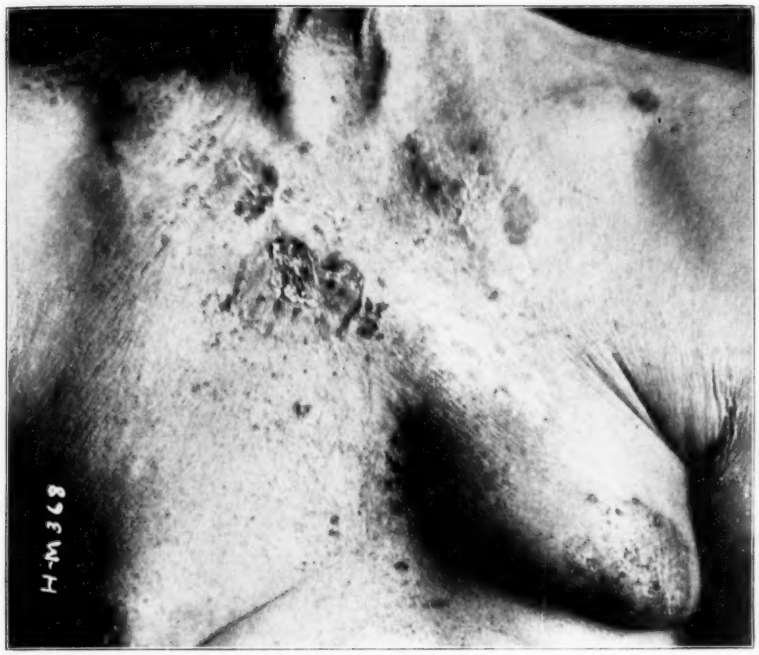

Fig. 1. Case V.

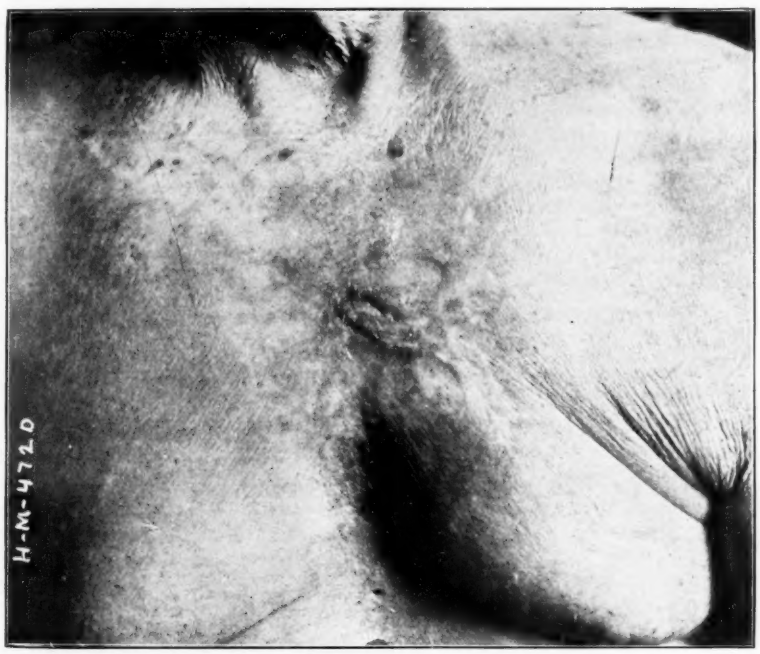

Fig. 2. Case V.

Fig. 3. Case XXI.

Fig. 4. Case XXI.

Fig. 5. Case XX.

Fig. 6. Case XX.

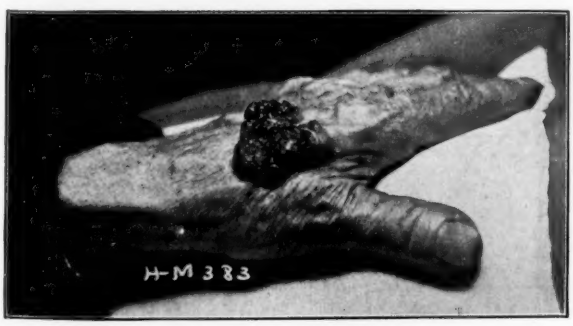

Fig. 7. Case XIII.

Fig. 8. Case XIII.

Fig. 9. Case XIII.

Fig. 10. Case XIII.

Fig. 15. Case IX.

Fig. 11. Case XII.

Fig. 14. Case VII.

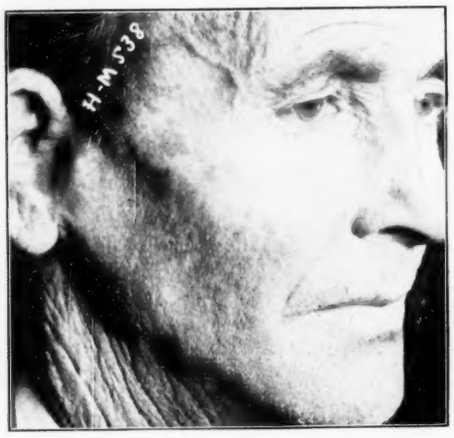

Fig. 16. Case IX.

Fig. 12. Case XII.

Fig. 13. Case XII.

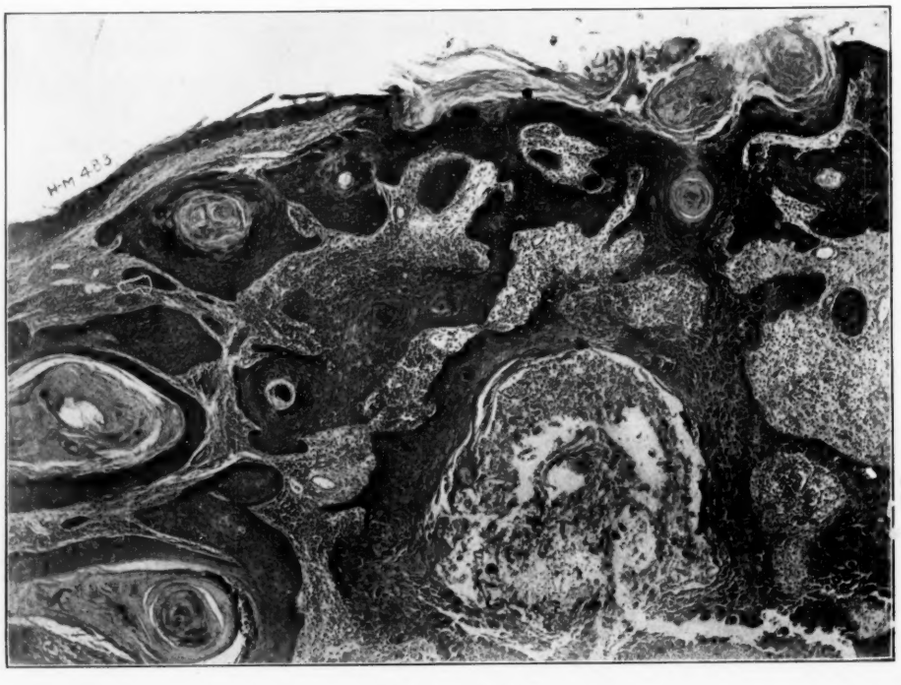

Fig. 17. Case IX.

Fig. 18. Case XVIII.

Fig. 19. Case XVIII.

Fig. 20. Case XVIII.

Fig. 21. Case XVIII.

Fig. 22. Case X.

Fig. 23. Case X.

Fig. 24. Case X.

Fig. 25. Case XXII.

Fig. 26. Case XXII.

Fig. 27. Case III.

Fig. 28. Case III.

Fig. 29. Case XIX.

Fig. 30. Case XIX.

Fig. 31. Case XVI.

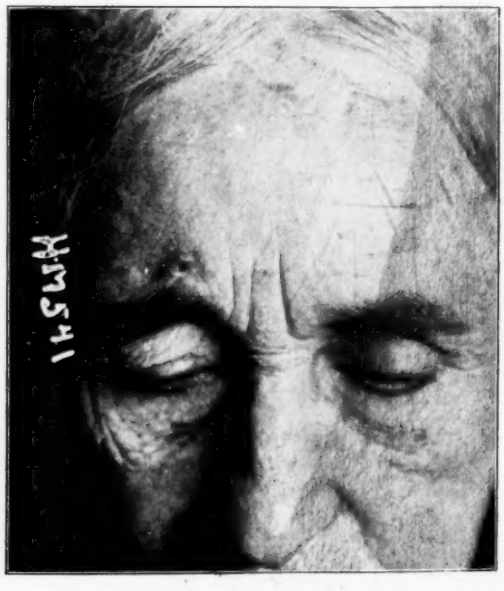

Fig. 32. Case XVI.

subsides in from three to ten days. In normal skin the reaction is followed by pigmentation, which acts as a protection against the light-rays, so that in a given area successive treatments are followed by a constantly diminishing intensity of reaction. In morbid tissue, the protective pigment is much less marked or entirely absent. In effect the light from the lamp differs, then, decidedly, from the *x*-rays in the following particulars: Reaction occurs promptly; it is always superficial; it leaves a pigmentation, which protects to a degree against the light in successive exposures; and the final results of treatment are apparent usually within a short period of time. With the *x*-rays the reaction is much slower in appearing, from one to two, or even three weeks; it frequently involves deeper tissue; the normal integument once the seat of distinct reaction is usually much more sensitive to subsequent exposure; and, finally, the effects of the radiation are frequently prolonged through several months after the last exposure.

CARCINOMA.

Of 55 cases of carcinoma of the skin treated by us with radiotherapy, the majority were of the superficial type, known generally as epithelioma or rodent ulcer. The value of the *x*-rays in the removal of such growths is so generally recognized that we shall give here a summary merely of our observations, together with brief outlines of a few typical and otherwise interesting cases. In the most superficial forms of carcinoma our results have been quite uniformly successful. As a rule, after giving the lesion a few short exposures and waiting for a period of ten days or two weeks to allow for any unusual susceptibility on the part of the patient to manifest itself, from twelve to twenty-one treatments with a moderately soft tube were given on every alternate day or daily until there appeared a slight erythema, on the recognition of which treatment was suspended, at least temporarily. In discharging ulcers the secretion became markedly less or disappeared in from four to eight days after beginning treatment, while pain or other anomalous sensations usually subsided earlier. All evidences of reaction disappeared, as a rule, in from two to four weeks after the last treatment, leaving in the majority of these cases a soft, inconspicuous scar. In a number of cases, however, in which infiltration extended somewhat deeper, it was found that while the major part of the growth had disappeared, there remained, even after several weeks, a few isolated or possibly a row of epithelial pearls or nodules, which required a second period of treatment similar to but shorter than the first. The cartilage-like border seen in some cases of superficial carcinoma does not, as a rule, yield readily to the influence of the rays, and better and more prompt results can be obtained, we believe, by removing such borders with the curette before resorting to radiotherapy.

In 25 cases (of which Cases 1 to 8 will serve as types) the lesions have been entirely replaced by scar tissue, and there has been no evidence of recurrence during periods varying from two to nine months. Of these patients one only was under 30 years of age; 21 were 40 or older. The age of the lesion was from one to 20 years. The number of treatments given varied from 10 to 27 and were given during a period of time varying from 12 days to 6 weeks. The reaction subsided, together with the disappearance of the lesion, in from 10 days to 4 weeks after suspension of treatment.

In the treatment of surface carcinoma involving the deeper tissue, our results have not been so uniformly satisfactory. In some of these cases the treatment with moderately hard tubes was carried to the point of producing a decided inflammatory reaction in the morbid tissue. While the treatment has been followed in a number of instances by complete disappearance of the tumor, in a few cases the induced inflammation apparently hastened extension of the growth or the formation of metastases. Cases 9, 10, 11, 13 and 15 illustrate very well the rapid extension of the growth following cessation of treatment or the occurrence of metastases during treatment. We have seen, not only in our own cases here reported, but in several cases treated by others, the usual swelling and reaction produced by successive treatments followed by an almost complete disappearance of the growth with the subsidence of reaction, and then, after a few weeks of further rest, a very rapid extension of the growth to the neighboring tissue, producing in several instances, within two or three weeks' time, a larger tumor than that for which the patient was originally treated. In each of these cases the second growth of the tumor has been far more rapid than anything we have ever seen in unmolested carcinoma. The second growth in each instance has had all the clinical features of true carcinoma. In one case, concerning which there was some doubt in our minds, sections of tissue removed from this rapidly extending second growth showed it to be typical carcinoma. In two instances (Cases 10 and 13) and probably in a third (Case 9) metastases have occurred during the successful treatment of the primary tumors. While we are not in position to demonstrate absolutely the pathologic conditions underlying these clinical phenomena, it certainly seems reasonable to suppose that the production of an inflammation in and about the morbid growth must favor the dislodgement and dissemination into surrounding tissues of the carcinoma cells and their transportation by the lymphatics to more distant regions of the body. As the normal tissue immediately about the tumor participates in the inflammation, and has come to some extent under the influence of the *x*-rays, there is produced a zone of lessened resistance, which must also favor extension of the growth. Though the effect of radiotherapy is to produce destruction and degeneration of the carcinoma-cells, is it not possible or even probable that some of these dislodged cells may have so far escaped the influence of the rays that they are still capable of proliferation and of starting a new growth? In attacking these tumors with the *x*-rays so vigorously as to produce in them a marked inflammatory reaction, we believe there is distinct danger of encouraging extension of the growth in surrounding tissues and of producing metastases. Many carcinomas can be removed more slowly by less vigorous application of the *x*-rays. In inoperable cancer, which threatens to be rapidly destructive, experience may yet prove that to attack very vigorously with high-tension tubes, and risk the danger of a deep burn in hope of quickly destroying the tumor, may be a safer procedure than to produce a moderate reaction, which may be followed by extension of the growth.

TUBERCULOSIS.

Our observations have included 14 cases of cutaneous tuberculosis. Of 7 cases of lupus vulgaris, 2 (Cases 17 and 18) have completely recovered; 2 more are nearly well, and the remaining 3 are much improved. In 3 cases involving both sides of the face, phototherapy was used on one side, while radiotherapy was used on the other. In one of these complete recovery occurred on

both sides in practically the same length of time (Case 18). In the second, which was an extensive case of nodular lupus, involving the major portion of both cheeks, the entire nose, the eyelids and a part of the forehead, and was of fourteen years' duration, the two sides have progressed about equally towards recovery. The third, a case similar in type and distribution to the second, but occurring in a child and of only five years' duration, has been under treatment for but a short time.

With phototherapy the best results are obtained when a marked reaction is induced and sufficient time allowed between treatments of a given area for completion of desquamation. The process is necessarily tedious, but the final results are attained as rapidly and are more satisfactory than with other methods of treatment. Two cases made complete recovery in three months, while the second case above described has had continuous treatment for a period of six months. For mucous membranes and places not readily accessible, radiotherapy is advised; but on all accessible places, and especially if not too extensive, phototherapy is preferable, as it apparently requires no more time than does radiotherapy and is free from the danger of producing a more destructive inflammation than is required.

A tubercular ulcer of one year's duration, involving the dorsum of the hand, disappeared completely after eleven treatments with radiotherapy. Two cases of disseminated tuberculosis of the skin having a generalized distribution are gradually being relieved. A case of tuberculosis verrucosa cutis, involving the forearm quite extensively, was greatly improved after seven treatments with radiotherapy. For five months the patient has been unable to leave work long enough to come for further treatment, but reports that the arm is much better than when last examined by us.

In an extensive lupus of twenty-nine years' duration, in which healing with dense and irregular scar-formation had occurred, a carcinomatous growth began to develop two years ago. It was located on and beneath the chin, and was about two inches in diameter, markedly elevated, indurated, and covered with small, wart-like projections. This lesion has received thirty treatments with the *x*-rays during a period of ten weeks, and now shows only a small ulcer level with the cutaneous surface. The patient is the victim of general tuberculosis.

A case of tuberculosis verrucosa cutis of the palm disappeared after fifteen treatments with phototherapy, leaving at present a few small points of hyperkeratosis. In a girl of 17 years multiple tubercular ulcers and sinuses, following the breaking down of tubercular glands, healed completely in ten weeks under the influence of the *x*-rays. The disease began in this case ten years ago as a tubercular dactylitis. The gradual extension of the disease, involving bones and joints, necessitated amputation first above the wrist, and later above the elbow. At the time the patient came to us the axillary glands were involved, and the stump of the upper arm was riddled with tubercular ulcers and sinuses. Amputation at the shoulder joint had been advised by her physician and consulting surgeon. Not only did the ulcers heal under the influence of the *x*-rays, but the enlargement of axillary glands has almost entirely disappeared and the girl's general health has greatly improved.

LUPUS ERYTHEMATOSUS.

In nine cases treated long enough and with sufficient regularity to note results, we found the treatment to be of undoubted value. With one exception, our results have been much better with phototherapy than with radiotherapy, though both methods were tried in several cases. The lesions treated were on the face, nose, eyelids, forehead, and ears, and were of from one and one-half to five years' duration. The usual procedure is to treat one area, one inch in diameter, at each sitting of fifteen minutes' duration. Intervals between treatments for each area vary from five to fourteen days. About two to four hours after treatment some anomalous sensations, such as pricking or stinging, usually occur. In from four to eight hours an erythema usually develops, and in from twelve to twenty-four hours a dermatitis follows, which varies in intensity up to the formation of bullæ. After three or four days the reaction usually subsides with desquamation, and by the end of a week or ten days the process can be repeated. When the lesion is unusually sensitive, it is given protective treatment. Subsequent reactions, as a rule, are not so severe as the first. Lesions in which the vascular element predominates yield most readily, some of them disappearing after two treatments. Cases in which the sebaceous element is marked are more obstinate.

PSORIASIS.

We have treated thirty-two cases of psoriasis with radiotherapy, causing in each case at least a temporary disappearance of the lesions. From four to ten treatments on a given group of lesions were usually sufficient to cause them to disappear entirely, except for a certain amount of pigment. In lesions in which the thickening was but moderate the scales often disappeared after the second or third treatment. Relief from itching when such is present occurs about the same time. As a rule, the first effects noted on a psoriatic lesion are the inability to demonstrate bleeding points and the lessened quantity of scales, which are more readily detached, and lose their micaceous appearance, becoming more friable or even powdery. In about 50 per cent. of the cases new lesions returned, either at the site of the old ones or elsewhere, within a few weeks. Of the remaining cases, both local and generalized, recurrence was delayed in many for several months. In two cases, in which circumscribed areas of psoriasis had persisted for many years in defiance of all treatment, ten exposures were followed by complete disappearance of the lesions, which have not returned after a period of eight months. In a few of the generalized cases, however, it happened that even though the treatment was continued through several weeks, as new regions were treated new lesions would appear on other parts of the body from which the disease had been removed previously. As a rule, recurring patches are removed with fewer treatments than are required for the original ones. It is also true that lesions of short duration are less resistant than those of longer standing. In a single case in which the disease was unusually acute and the skin of the patient especially sensitive, the treatment seemed to render the skin more irritable.

In the treatment of psoriasis we use a fairly soft tube, and very short exposures, at a distance of ten or twelve inches. It has not been necessary in any case to produce any visible evidences of reaction, not even an erythema or pigmentation. The influence of the *x*-rays on psoriasis is in keeping with the fact demonstrated by one of us (Hyde) twelve years ago and frequently since, that some psoriatic patients can free their skins of all lesions by prolonged sun baths.

OTHER DISEASES.

In nine cases of hypertrichosis treated by us with the *x*-rays the hairs were removed in from sixteen to twenty treatments on a given area. In five there was a return at the end of six weeks or two months of a considerable portion of the hairs. In one of these five cases the hairs which returned were removed in nine treatments. After another period of two months a few hairs are again returning. Four of the nine cases have never reported after the first removal of the hair.

In eighteen cases of alopecia areata treated by phototherapy, prompt return of the hair occurred in two, marked improvement in three, and but little or no change in thirteen cases. The treatment does not seem to present any marked advantages over other methods in vogue. We have not used the *x*-rays for fear of producing permanent alopecia, but have used phototherapy to the extent of producing a vesicular dermatitis.

In ringworm of the scalp we have had no success whatever; but here again we have feared to use the *x*-rays freely for fear of producing permanent alopecia.

In a few cases of acne and rosacea our use of the *x*-rays has been followed by very marked improvement. In two extensive and very severe cases of acne, which had resisted for months all our efforts at treatment, the eruptive symptoms disappeared completely under the use of the *x*-rays. In other cases a few exposures have seemed to materially aid the other treatment employed. The cases of acne in which radiotherapy is of unquestioned value are those in which the disease is limited to a small area. Here the treatment may be pushed, if necessary, to the point of producing atrophy of the affected glands and follicles. When many scattered glands are involved and new lesions are constantly forming, radiotherapy gives temporary benefit, but can not be expected to prevent recurrence of the lesions unless the treatment be carried far enough to produce general atrophy of the sebaceous glands of the face. But the sebaceous glands have a function to perform, and to produce a general atrophy of these glands of the face must be a questionable procedure until we can determine what effect such a course would have on the skin ten, twenty, or forty years later. Again, no local treatment can be expected to replace entirely treatment of the underlying conditions on which many cases of acne depend.

In several cases of sycosis we have used radiotherapy with decided benefit. Here again we have reserved the treatment for the few cases that have not responded to older methods, for fear of producing permanent loss of hair.

In a few cases of rosacea and in several instances of fine telangiectases, phototherapy has given good results.

In five cases of keloid-like scars following burns, a series of exposures to the *x*-rays has been followed by a decided softening and thinning, but not by complete disappearance of the scar. In these cases treatment was carried to the point of producing erythema and desquamation; in one only to the point of producing a dermatitis.

In several areas of chronic eczema and in three severe cases of intertrigo radiotherapy has given excellent results. In one exceedingly stubborn case of eczema of the scrotum, of many years' duration, in which a vitiliginous condition had appeared on the infiltrated skin, ten daily treatments gave the patient relief from itching; the infiltration gradually disappeared, and later the normal pigment returned.

In two cases of cutaneous blastomycosis which had refused to heal entirely under the iodid of potassium, the persisting borders disappeared after twelve and sixteen treatments respectively with radiotherapy.

In a case of mycosis fungoides, in which the patient's body was more than half covered with characteristic thickened and scaling areas, some of which were approaching the tumor stage, all lesions treated with radiotherapy faded decidedly or disappeared entirely, while those not so treated remained or increased in size.

Several cases of hyperkeratosis (see Figs. 29 and 30, Case 19) and of pre-epitheliomatous lesions yielded to the treatment.

NARRATION OF CASES.

CASE 1.—Mr. R. H., aged 79; carcinoma of the lip. A brother died from a cancer, also beginning on the lip. On examination the middle third of the lower lip was found to be the seat of a typical superficial ulcerating carcinoma of one and one-half years' duration. A horny mass, the size of a coffee bean, extended outward from the border of the growth. During a period of six weeks 21 treatments were given, after which the entire lesion disappeared, leaving only a thin, soft scar. No sign of recurrence six months after treatment.*

CASE 2.—Mrs. B., aged 61; carcinoma of the inner angle of the eye and root of the nose, beginning in 1898. It had been excised and skin-grafted. On examination, a mass of epithelial pearls was found beneath and on the surface of the flap of grafted skin. During three weeks 20 treatments were given, at the end of which time the tumor-mass and induration had disappeared, leaving the area slightly red but quite tender. One month later all evidences of reaction and of the carcinoma had disappeared. Four months have passed with no sign of recurrence.

CASE 3.—Mr. W. F., aged 60; carcinoma of parotid region, of two years' duration (Fig. 27). The lesion was the size of a large hazel nut, having an ulcerating center, an elevated and hard border and was situated on an indurated base. It was assuming a more malignant type, as evidenced by increased rapidity of growth and greater pain. After 18 treatments, during a period of three weeks, the lesion became bluish and slightly swollen. The discharge lessened after the third treatment, and pain ceased entirely after the sixth. Two months after beginning treatment the growth was entirely replaced by a soft and almost invisible scar (Fig. 28).

CASE 4.—Mr. Ch., aged 45; carcinoma of lip of ten years' duration. The lesion presented a superficial ulcer, situated on an indurated base. During a period of four weeks 14 treatments were given, ten days after the last of which the entire lesion had healed. No recurrence after seven months.

CASE 5.—Mr. O. S., aged 76; multiple carcinomata of the trunk of twenty-five years' duration. He had been for twenty years under the almost constant observation and care of two well-known New York surgeons and of an equally well-known dermatologist of that city, by whom he was referred to us. A large number of the growths had been removed from the chest and back by excision, by curettage, or with caustic pastes. On the chest and breast there remained three irregular superficial areas, ulcerating in places, but made up, for the most part, of small nodules and ridges. There were also numerous small scaling and thickened areas (Fig. 1). During a period of six weeks 20 treatments were given, producing a moderate dermatitis. This rapidly subsided except in one place, which healed slowly, requiring twelve weeks for complete recovery. The carcinomatous areas completely cleared up, leaving more or less scar tissue (Fig. 2. Since this photograph was taken the scars have become soft and smooth). No recurrence after six months. The diagnosis was verified by histologic sections.

CASE 6.—Mr. D., aged 35; carcinoma of eyelid. A large part of the border of the right lower eyelid was the seat of an ulcerating carcinomatous growth, which had destroyed the

* With the exception of Cases 9, 10, 11, 13 and 15, these histories were written, June 1, 1902. There have been no other recurrences since that date, and a number of cases reported here as improved, have recovered completely.

glands, the hair follicles and some deeper tissue. During a period of nineteen days 16 treatments were given, the lid being drawn downward and the eyeball protected from the rays. Considerable reaction and swelling occurred, which disappeared in three weeks, leaving only a soft, thin scar. The resulting deformity is so slight that it is not apparent except on careful inspection. The case is of interest chiefly in demonstrating what can be done about the eye, provided sufficient care be taken, with this treatment. No irritation of the eye further than a mild conjunctivitis occurred at any time.

CASE 7.—Mrs. T., aged 51; recurrent carcinoma of forehead of ten years' duration. The growth had recurred after complete excision and presented a large superficially ulcerating and crusting surface (Fig. 14). During a period of four weeks 14 treatments were given. Some erythema occurred, which soon subsided, leaving a smooth, perfectly healed surface. No recurrence after two months.

CASE 8.—Mrs. C., aged 44; carcinoma of the bridge and side of the nose. Began in 1895; was excised in 1896; recurred in March, 1901; curetted in June, and again in August, 1901. Nov. 8, 1901, a characteristic but superficial ulcerating lesion was present. During a period of one month 13 treatments were given, with only a slight reaction, which cleared up one week later, leaving the usual delicate scar. No recurrence at date.

CASE 9.—Mr. A. C. B., aged 55; multiple carcinomata of the face of fifteen years' duration. A large part of the right cheek was involved, beginning immediately in front of the ear, where one of the tumors had been excised one year previously, and extending to the outer canthus of the eye, and downward onto the nose. The lesions were for the most part superficial, in the form of small pearly nodules or ridges, which in places had been replaced by equally small superficial ulcers or atrophic areas. There were three distinct tumors, the largest being the size of a small walnut and located over the malar bone. The second, somewhat smaller (removed for histologic study) was located about one and one-half inches below and internal to the first; while the third, still smaller, was situated about the same distance below, but nearer the ear. His entire face was more or less covered with irregular, thickened, slightly crusted areas of the type known as seborrheal or senile warts (Fig. 15). Sections from the tumor removed showed the typical structure of carcinoma (Fig. 17). From Nov. 13 to Dec. 2, 1901, 12 treatments were given, when erythema appeared and treatment was suspended. Jan. 6, 1902, the largest tumor had more than one-half disappeared, and the lesions on the rest of the face were much diminished. March 17 only a few small areas remained, but the entire region was given 10 treatments up to March 27. About two days later a severe dermatitis, involving especially the scar tissue, appeared and continued for a period of over two months. As this was subsiding a deep-seated subcutaneous growth involving the region slightly in front, beneath, and back of the ear appeared and grew with great rapidity, attaining the size of a small egg in less than four weeks. As this appeared in a region from which one of the carcinomatous tumors had been excised a year before, it is not possible to determine whether it was a recurrence from the old tissue or a metastatic growth. In either event, the growth of this secondary tumor was much more rapid than usually occurs in unmolested carcinoma. This growth was given 11 treatments without apparent beneficial effect, and four weeks later was extirpated by Dr. Bouffleur. It was then found to involve the fifth nerve quite extensively, and occupied the region of the parotid gland, extending down into the superior triangle of the neck. The region of the operation is again being subjected to radiotherapy with the hope of destroying any remaining carcinomatous cells. The original lesions disappeared completely, leaving a soft, smooth scar (Fig. 16).

CASE 10.—Mr. McC., aged 58; carcinoma of the ear. His father died of gastric carcinoma, and his brother is now under treatment by us for deep carcinoma of the neck (Case 14). The tumor began three years ago. For sixteen months an arsenical paste had been applied. When he came under our observation two-thirds of the ear had been destroyed, the stump being indurated, painful, ulcerating and discharging (Fig. 22). He did not wish to submit to an operation, preferring to try radiotherapy. After receiving 18 treatments during a period of five weeks, the growth was very much smaller, and continued to diminish during the three weeks of rest which followed. The reaction subsided in this time, leaving the ear much smaller and the ulcerating surfaces healed but for two or three small openings leading to deeper-seated disease (Fig. 23). Nine daily and fairly vigorous treatments followed and produced a decided inflammation and tumefaction of the ear. At the end of a four weeks' rest the reaction had subsided and the outlook was favorable, when suddenly (the patient, who was in the country at the time, says within ten days) the growth invaded adjacent tissues and became much larger than ever before. A section of tissue from this new growth showed it to be a true carcinoma and not an inflammatory product. Twenty-one treatments were then given, during a period of five weeks, followed by six weeks of rest. During these eleven weeks the tumor has been gradually but very slowly diminishing in size. The surfaces have not healed, however, and the growth is more extensive than when treatment was begun (Fig. 24).*

CASE 11.—Mr. D., aged 47; carcinoma of the lip of eighteen months' duration, which had been treated with pastes. One half of the lower lip was the seat of a deep, destructive, ulcerating, discharging, and painful carcinoma. During a period of ten weeks 32 treatments were given this lesion, more or less regularly. At the twenty-first treatment the growth appeared less indurated and had but little discharge or pain; but a metastatic deep-seated growth appeared on the ramus of the jaw on the same side. This lesion was given 26 treatments. Six weeks after suspension of treatment the tumor of the lip, which had been considerably reduced in size, rapidly involved adjacent tissues until it was a third larger than before beginning the treatment. The metastatic growth had not yielded to the treatment and the patient has consented to a radical operation.

CASE 12.—Mrs. K. B., aged 46; carcinoma of the nose. A superficial, ulcerating lesion of two years' duration was located on the front of the nose, while a deeper-seated tumor of ten years' duration was situated on the side of the nose (Fig. 11). During a period of twelve days the former lesion received 9 treatments, and fourteen days later was replaced by scar-tissue. During a period of ten weeks the tumor received 33 treatments, after which it disappeared, leaving an excavation (Fig. 12) which is slowly filling up. A rim of epithelial papules was left, which received 22 additional treatments, with the result that most of them were removed (Fig. 13). A few more treatments will probably be necessary.

CASE 13.—Mrs. D. B., aged 76. The patient was extremely ignorant and talked but little English or German. The history was unsatisfactory, aside from her statement that the lesions had been present a number of years. A deep-seated, ulcerating and destructive carcinoma involved the entire lower lip (Fig. 9), with metastases in the submaxillary gland of the right side. A superficial, but typical, carcinoma was situated on the left cheek, and there was a large, malignant papilloma on the dorsum of the left hand (Fig. 7). After 12 treatments on the lip and hand, during a period of two weeks, the discharge from the former had ceased; the lesion was smaller (Fig. 10) and the involved gland was much reduced. These treatments were energetic, and the result was a marked dermatitis about both lesions. On its subsidence the tumor on the hand had nearly disappeared (Fig. 8. An unhealed area from the dermatitis shows above the site of the tumor). During the next two months the lip received 19 treatments and continued to improve, the tumor and dermatitis of the hand disappearing entirely. Treatment was temporarily suspended. Three weeks later the patient returned, showing a rapid growth of the right submaxillary gland originally involved and a rapidly growing tumor of the left submaxillary region.

* Extension of the growth continued and the patient finally consented to a radical operation. Dr. A. D. Bevan excised the entire mass and covered the surface with skin grafts, which are growing well and cover all but a small area.

The patient became discouraged and refused further treatment.

CASE 14.—Mr. McC., aged 76; recurrent carcinoma of the neck. His father died of gastric carcinoma, and a brother is reported in Case 10 of this series. The disease was of twelve years' duration; beginning behind the ear, extending downward. It has been extirpated six times. The tumor was entirely subcutaneous, the size of a hen's egg, firmly adherent, hard, painful, and immovable. During three weeks 19 treatments were given; after the tenth treatment deep-seated tenderness and swelling began and increased toward the end of the treatment. Four weeks later the swelling and tenderness disappeared, leaving the tumor smaller and freely movable. During the following two weeks 14 treatments were given; tenderness followed the fourth and swelling began at the fifth treatment. Both of these symptoms were marked when treatment was suspended. Two weeks later the swelling and tenderness are again subsiding.

CASE 15.—Mr. P. D., aged 55; carcinoma of the face. His disease had been treated with pastes. He presented a typical ulcerating carcinoma about one and one-half inches in diameter, involving nearly the entire thickness of the cheek, beginning at the angle of the mouth and extending upward, outward, and downward. He had been subjected to the *x*-ray for three weeks before consulting us. After an interval of rest he was given, during three weeks, 14 treatments, after which a decided reaction led to a rest of three weeks. Some improvement was noted at first, but during the latter half of this second period of rest the tumor rapidly extended and involved the surrounding tissue. During the next three weeks 16 treatments were given, after the ninth of which the spreading ceased and the lesion began to flatten. The treatment was again suspended temporarily because of the reaction, and the growth seems to be at least quiescent, but the loss of normal tissue is much greater than at the commencement of treatment.

CASE 16.—Mrs. A. D., aged 70; superficial carcinoma, of ten years' duration, of forehead, nose and cheek. The involved areas were more or less covered with crusts, epithelial pearls and ridges, small scars, and superficial ulcers (Fig. 31). During a period of six and one-half weeks 22 treatments were given, when slight reaction occurred. A month later all evidences of inflammation and of the original growth had disappeared except for scars and pigmentation and for a small circumscribed area bordered by a few characteristic pearls (Fig. 32). In the two months which have elapsed since the last photograph was taken the pigmentation has disappeared and the scars have become very inconspicuous. The small ulcer has healed, but a few pearls remain and will require further treatment.

CASE 17.—Miss M. J., aged 20; lupus vulgaris. An irregular area, about one and one-half inches in diameter, had existed on the left cheek for twelve years, but by constant treatment and frequent scraping had been kept fairly under control. Tubercle bacilli were demonstrated in the nodules, portions of which inoculated beneath the skin of guinea-pigs, produced in them general tuberculosis. Jan. 18, 1902, a small patch still remained at the lower angle of the original area. This was given 17 treatments with phototherapy during a period of three months, at the end of which time all evidence of the lupus infiltration was absent and the heavy scar tissue left from former treatment was much reduced and softened.

CASE 18.—Mrs. J. L., aged 30; lupus vulgaris of five years' duration. There were three areas on the right cheek and temple (Fig. 20) and one on the left cheek and side of the nose (Fig. 18). The lesions on the left side were given 11 exposures to the *x*-rays during a period of four weeks, beginning Nov. 20, 1901, when some erythema appeared. Beginning again on March 4, 1902, 15 treatments were given during a period of four weeks, when reaction again was manifest. One month later all evidence of the nodules had disappeared, leaving only a delicate scar (Fig. 19). Each of the three areas on the opposite side received, during a period of three months, 8 to 10 treatments with phototherapy, at the end of which time they were also entirely free from nodules and showed only a very thin scar (Fig. 21). Since the last photographs were taken the scars on both sides have smoothed out and become even less conspicuous, the pigmentation having disappeared entirely.

CASE 19.—A. C., aged 5 years; congenital keratodermia of palms and soles (Fig. 29). Both palms and soles were covered with thick, dark brown and almost black horny plates, the thickening of the skin being so marked that complete extension of the fingers was not possible. Treatment with plasters, pastes and ointments produced but slight and temporary improvement. From Jan. 29 to May 22, 1902, 9 radiotherapeutic treatments were given, at the end of which time most of the horny material had been removed and the skin of the hands was much softer and lighter in color, and the fingers could be completely extended (Fig. 30). During the following few weeks 7 more treatments were given the palms, still further improving their condition. It is now two months since the last application was made to the hands, and there has been no return of the original trouble. The same treatment, with similar results, is now being applied to the soles of the feet.

CASE 20.—Mrs. A. C., aged 70; multiple carcinoma of the face, of fourteen years' duration. Midway between the malar eminence and the bridge of the nose on the right side was located a characteristic ulcer, having a raised, hard border and a deeply indurated base (Fig. 5). A similar lesion, but not quite so deep-seated, existed over the left malar bone; while on the right temple there was a large senile wart. During a period of five weeks twenty-seven treatments were given. Seventeen days after suspension of treatment the lesions were swollen and still reacting, but after an additional seventeen days there remained only some pigmentation and a slightly depressed scar (Fig. 6).

CASE 21.—Mr. Br., aged 65; carcinoma of three years' duration, involving the region over the root of the nose, extending to the inner angle of either eye, also some distance on the forehead, and occupying one-half of the left upper eyelid (Fig. 3). Fifty treatments were given at irregular intervals during four months, leaving only a very delicate scar, in which two epithelial papules can still be detected (Fig. 4).

CASE 22.—Mrs. H., aged 45; rodent ulcer of fifteen years' duration, situated back of lower part of the ear. Had recurred from a former operation (Fig. 25). Seventeen treatments were given during a period of four weeks. One month later nothing remained except a fine scar with one small epithelial pearl at the upper angle of former lesion (Fig. 26).

CONCLUSIONS.

While it is too early to form definite and sweeping conclusions regarding the value of radiotherapy and phototherapy in all the affections in which they have been employed, our experience leads us to believe that in tuberculosis of the skin these methods of treatment are superior to any others now known to us. In lupus erythematosus, phototherapy has in our hands given very satisfactory results, far better than those we have obtained by any other method.

In superficial carcinoma involving considerable areas, radiotherapy is undoubtedly preferable to all other known methods of treatment. Superficial lesions more circumscribed are equally amenable to treatment with the *x*-rays, though in many instances small tumors can be removed more promptly by complete erasion or excision. For many of these circumscribed growths we are now inclined to advocate removal either with the knife or curette, followed by a series of treatments with the *x*-rays. In operable carcinoma of the skin which includes deeper tissues, we advocate complete extirpation followed by *x*-ray treatments. Where the growths are inoperable radiotherapy offers a possible chance of recovery, or of lessening the discomfort of the patient. As a result, however, of our observations of our own and other cases, we believe that in exciting an inflammation in carcinoma one is, to some extent at least, en-

couraging an extension of the growth through a dissemination of the cancer-cells to normal (or inflamed) tissue surrounding the growth and of favoring metastases. We believe this possibility constitutes a danger in the treatment of carcinoma by the *x*-rays that has not been sufficiently recognized.

The value of radiotherapy in extensive cases of hypertrichosis has been fairly well established by other observers. It has given us excellent results in the majority of cases of psoriasis treated. It has unquestionably been used successfully in many of the chronic inflammatory diseases of the skin, especially in acne, rosacea, folliculitis, and suppurating wounds; but until this agent can be employed with greater accuracy we believe it should be reserved chiefly for those cases in which better known and better controlled methods are not successful.

It is not yet possible to draw definite conclusions with reference to the comparative values of radiotherapy and phototherapy. The former is, for the most part, readier of application and apparently has a wider field of usefulness than the latter. In lupus erythematosus, however, phototherapy has repeatedly given us excellent results where the *x*-rays have failed altogether or aggravated the condition. Judging from our experience and from the larger experience of Finsen and others in the treatment of tuberculosis of the skin, we believe that in this disease phototherapy gives in the end results as rapid as those obtained with the *x*-rays, with better cosmetic effects and without danger of deep burns.

There is no doubt that both phototherapy and radiotherapy are valuable additions to our methods of treating certain diseases. There is also no doubt that their field of usefulness eventually will be proven much more restricted than that in which they are employed at present. Unfortunately there can be no doubt also that harm is doing and will be done by the action of *x*-rays in the hands of the unskilled or the unscrupulous. No one should attempt to employ radiotherapy who has not first carefully studied the subject and followed the work of some expert. Even with such preparation great caution is needed in acquiring experience with this new therapeutic agent; its accurate control and the character of results obtained being still subjects of discussion.

NOTES ON *X*-RAY TREATMENT OF CANCER,

WITH REPORT OF CASES.*

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One year ago the treatment of cancer by means of the Roentgen ray was in an experimental stage. To-day the medical profession seems to recognize it as a valuable therapeutic agent in certain forms of cancer. The successes of the past, however, simply stimulate us to search for new uses and find the best technic to enable us to accomplish these results most quickly and with the least possible danger to the patient. I shall therefore review briefly the histories of a few cases, selecting only those that seem to present some new feature, and then draw conclusions from the results in these particular cases and from observations made by others as well as by myself.

CASE 1.—M. B., white, aged 80. For twelve years had an epithelioma at the base of nose. The size and location is indicated by Fig. 1. Patient was treated with a weak light three months. At the expiration of this time the growth had almost healed. I continued the exposure with the result that the whole surface broke down again. At about this time her general health failed, and I supposed the return of the ulcer was due to low vitality. She was then too weak to be moved and exposures were discontinued. She died three months later of phthisis pulmonalis. At the time of death the entire area had been healed and was covered with a healthy, pink scar (Fig. 2).

CASE 5.—R. F., white, aged 70. Had an epithelioma of the right inner canthus and lower eyelid for five years (Fig. 3). He was exposed to the rays two to three times a week, and improvement was noted until he had 20 exposures. It then seemed to be at a standstill. Treatment was continued with increased vigor until he had 40 exposures. No improvement was noted after the 20th exposure. He then left the hospital and treatment was discontinued. No other treatment followed. Four months later he returned to show me that the area had entirely healed (Fig. 4).

These two cases progressed nicely to a certain stage and then seemed to be failures. In Case 1 I undoubtedly produced an *x*-ray burn, which I mistook for a return of the ulcer. In Case 5 I produced no burn, and yet I must have been keeping up sufficient irritation to destroy the new granulations as they formed. These cases indicate that we may do too much, and that when we reach the stage where the cancer seems to have been destroyed and the process of repair well started we should give Nature a chance.

Fig. 1. Case 1.

CASE 7.—M. M., white, aged 52. Had three operations on the nose during the past three years (prior to admission to this hospital) for the removal of some kind of tumors in the right nostril; the last operation had been performed six weeks prior to admission. She was admitted June 13, 1901, at which time her right nostril was filled with a new growth. July 12, 1901, Dr. E. B. Gleason removed a portion of the growth, which he decided was malignant. Aug. 1, 1901, Dr. Charles P. Grayson removed a portion of the growth, the removal of which was followed by a profuse hemorrhage.

Sept. 4, 1901, the laryngologists refused to treat the case further, and she was transferred to the surgical wards. At

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. W. T. Corlett, L. Duncan Bulkley and W. L. Baum.

this time the growth involved the inner third of the right eyelid, the entire right side of the nose, the antrum of Highmore and the roof of the mouth, at least the soft palate was indurated. The surgeon did not advise operation. A section was removed and referred to Dr. Flexner for pathologic examination. He reported that it was an epithelioma. She was given two exposures, September 7 and 13. Prior to the second exposure she had had constant pain. After the second exposure she volunteered the information that the pain had been relieved. Operation was then reconsidered and *x*-ray treatment was discontinued until Feb. 1, 1902, when she was taking morphin 1/3 gr. for the relief of pain. The entire orbit now seemed to be involved; the nose was swollen and there was distinct bulging of the antrum. She was then given an exposure of ten minutes at a distance of five inches with a vacuum corresponding to a parallel spark-gap of 2½ inches without a shield. After this treatment her pains were relieved and the morphin has been discontinued from that time to the present. Exposures were made every three or four days. After the first exposure a redness of the skin was noticed. After the second the cauliflower growths (about the eyelids) began to round off, and after the sixth had sloughed away. After the fourteenth exposure the skin broke over the antrum sufficiently to allow considerable pus to be discharged. This opening healed very promptly, and to-day (to all appearances) is as well as the opposite side of the face.

Fig. 2. Case 1.—Showing ulcer healed.

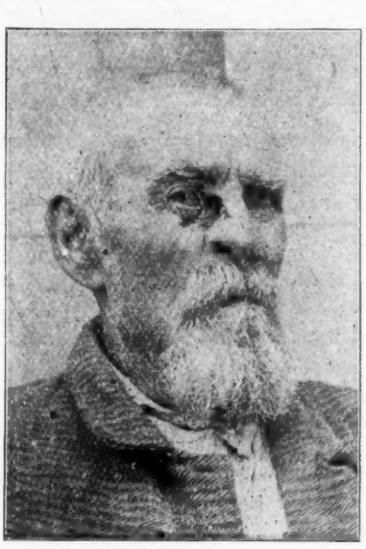

Fig. 3. Case 5.

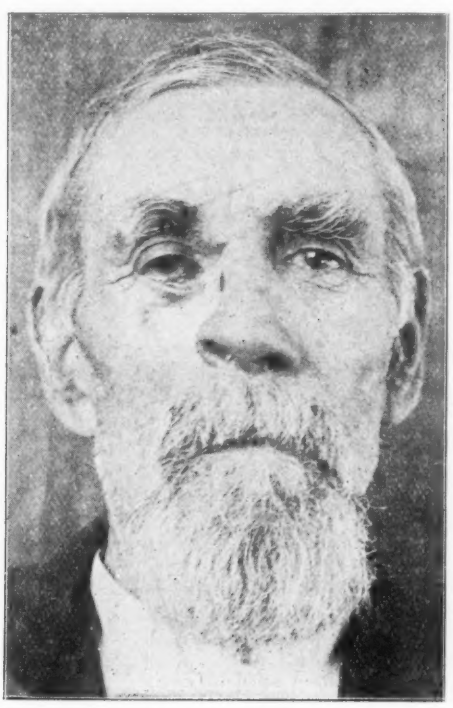

Fig. 4. Case 5.—Four months after treatment had been discontinued showing ulcer healed.

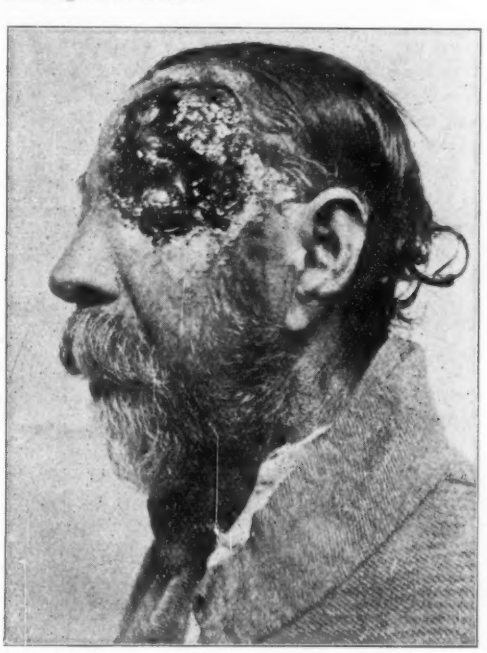

Fig. 5. Case 9.

Since the fourteenth exposure the progress has been slow, but steady. Up to the present time she has had 26 exposures. The right nostril is still about half filled with a growth that seems to be breaking down. The skin over the nose has at no time been broken, but has been kept constantly red. The patient in all likelihood would have been dead ere this without treatment, and the case is one of importance because of the cancer being destroyed beneath the skin.

CASE 9.—D. S., white, aged 72. One brother died from cancer of the cheek. The patient has had a cancerous ulcer affecting the left eye, forehead and face, accompanied by severe pain for 19 years. The extent of growth is shown in Fig. 5. A similar growth had developed at the inner canthus of the right eye and was connected to the larger ulcer by sinuses through the base of nose. There was also an elevated growth on the right chin the size of a silver quarter. Upon admission to this hospital (April 1, 1902) he was too weak to walk—his legs were very

Fig. 6, Case 9.—All cancer tissues apparently destroyed, though not healed—edges healing. Lower portion shows *x*-ray burn.

edematous and he was very cachectic. I felt certain that he would not live long. His complaint of great pain and my anxiety to ascertain what would be the result of *x*-ray treatment in a dying man caused me to commence treatment. He was given five exposures, April 1, 2, 16, 23 and 26. His pains were relieved. After the second exposure Dr. Howard Hansell, at my request, removed the eyeball, which had been extremely

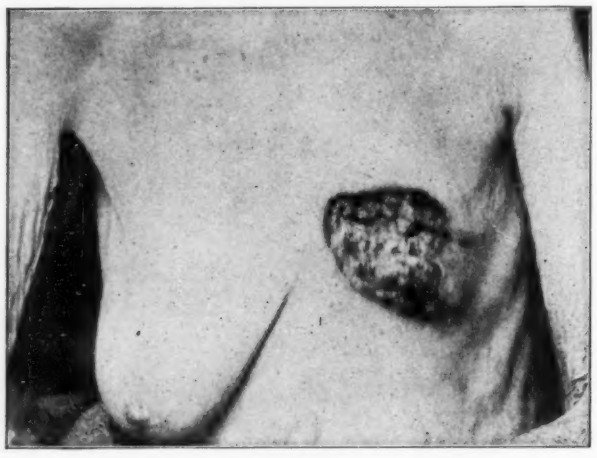

Figure 7.

sensitive. The cancer was exposed ten minutes at each exposure, with a soft tube at a distance of 1½ to 4 inches. A shield was not used at any time on account of the extensive and general involvement. After the last exposure a dermatitis was noticed extending downward on the left cheek. The patient, by this time (after one month), had grown too weak to be moved. He died May 8, when the second photograph (Fig. 6) was taken. By this time the growth on the right chin had disappeared. The large ulcer on the left side showed none of the original characteristics of cancer, and I believe the cancer itself had been destroyed. It had not healed for the reason that time had been too short, but the edges showed distinct signs of healing. The lower portion of the affected part shown in the picture was an *x*-ray burn and not cancer.

Sections were removed from four different parts and sent to the pathologist to determine whether any cancer tissue can be found microscopically. He has not as yet had time to make a report.

I report this case because of the remarkable improvement from five exposures and to show that improvement may occur even with the lowest vitality.

CASE 17.—A. T., aged 73. Had multiple, superficial epithelioma of the skin, varying in size from a pinhead to a quarter dollar. She has had 12 exposures, and all have desquamated but the largest, leaving a red surface.

CASE 18.—R. M., white, aged 94. Has similar multiple epitheliomata, and is improving.

Good results in cutaneous cancers and other diseases of the skin have been reported by Drs. Sequeira,[1] Williams,[2] Rinehart,[3] Taylor,[4] Johnson and Merrill,[5] and others. Most encouraging results have been reported in the treatment of recurrent cancer of the breast by Drs. Hopkins,[6] Clark,[7] Pusey,[8] Soiland,[9] Morton,[10] Scott,[11] Gocht,[12] Despeignes,[13] Stenbeck[14] and others. Only a

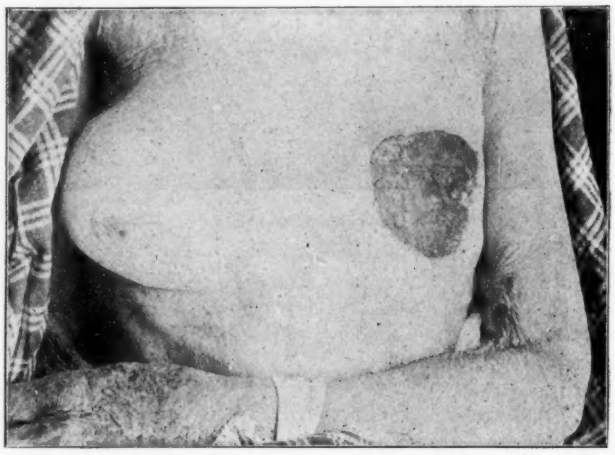

Fig. 8.—Cancer apparently destroyed except a small nodule at the outer side.

few have been reported cured, the others are still under treatment and improving. My experience with cancer of the breast is limited to four cases; two were primary, in which operation was refused. One of these had almost entirely healed when death resulted from an attack of uremia. Autopsy showed an indurated gland of the axilla the size of a large pea. The axilla had never been exposed. This teaches that, no matter how superficial a cancer of the breast seems to be, the axilla should be exposed. The other primary case was an old woman, who likewise died of uremia, after four exposures. The cancer apparently had been destroyed, except a small nodule in the upper and outer portion (Figs. 7 and 8).

THE TECHNIC USED.

A brief review at this time of the technic used in this work by myself and others may be of value, though I realize that no rules can ever take the place of experience and good judgment in adapting this energy to the needs of each case.

1. Both the coil used and the static machine give good results, but the balance of favor seems to be with the coil, as producing the quickest results.

2. A low vacuum tube corresponding to an air gap of 1½ inches seems to be universally accepted as the best for all superficial treatment, while for the deeper structures a higher vacuum tube corresponding to an air gap of 3 inches will give better and safer results, Dr. Morton recommends one as high as 7 inches for this purpose.

3. The distance of the tube from the exposed part will vary with the amount of energy and the resistance of the tissue, but seems to be safe at from 12 to 3 inches. Dr. Pusey recommends from 30 to 12 inches. By placing the tube near, however, we save energy and time, and if the tissues are watched carefully, I believe no serious results will follow.

4. The time of exposure should be from 5 to 20 minutes, depending on the reaction obtained, and should be repeated every second or third day, unless some contraindication should arise.

5. The surrounding tissues are best protected by lead foil (a convenient and economical method is the use of tea lead) in one or two layers, which may be covered on both sides by layers of adhesive plaster.

6. Best results, judging from cases reported as well as my own experience, seem to follow when the skin has been brought carefully to a reddened condition and kept so, without producing ulceration. This may occur in 24 hours or not until several days have elapsed after the exposure producing it.

7. I have found that dusting the open surfaces with equal parts of salicylic acid, boric acid and starch helps to keep the ulcer clean and assists in the formation of a cicatrix. Dr. Taylor recommends the use of an ointment of salicylic acid, 10 grains to the ounce of vaselin.

8. The time required to cure a superficial cancer is usually from two to six months. The deeper ones often require longer time.

The results obtained seem to be due to the *x*-ray itself or to a ray that moves in straight lines, similar to the *x*-ray. This point is illustrated by a case which I reported in the *Therapeutic Gazette,* March, 1902.

We can recommend the use of *x*-ray in all carcinomata, but especially those that are inoperable, or in which operation is refused. I would recommend that all cases operated on should be followed by a course of treatment by the *x*-ray. This latter method I believe would bring about the most rapid and successful results.

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Bats as Transmitters of Contagion.—Plague broke out in a solitary outlying house near Naples during the recent epidemic. The house had its separate water supply and none of the usual means of contagion could be incriminated, but Gosio noticed that bats were numerous about the place. He experimented to see if bats were susceptible to plague, with positive results. Further experiments with the numerous fleas on the bats showed that they were capable of transmitting the contagion to man. The *Allg. Med. Ct.-Ztg.*, which quotes the results of Gosio's research, observes that this is the first time that the bat has been shown to be harmful to man.

THE TECHNIC OF *X*-RAY THERAPY AS APPLIED TO DISEASES OF THE SKIN.*

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Schiff has, within the past twelve months, stated that beginners in this mode of treatment should proceed in a different manner than the more experienced. This statement alone from such an authority shows the unsatisfactory state of affairs. Other writers have attempted to formulate rules, but none have been universally accepted.

THE PREPARATION OF THE PATIENT.

To begin with: how are the surrounding healthy parts of the area to be put under treatment to be protected from the action of the *x*-rays? Rollins devised a box in which the tube is enclosed. This is coated on the inside with heavy lead paint and has a diaphragm of changeable size, so that the size of the cone of *x*-rays passing to the outside may be regulated. This contrivance is used but very little, probably partly on account of its cumbersomeness. As the surrounding healthy parts clearly ought to be protected I find it convenient to make shields of sheet lead. Several thicknesses ought to be on hand for the convenience of bending or plying the metal to the configuration of the body. I have on hand three grades, lead sheeting one-twentieth of an inch in thickness, then tea lead No. 1, and for the thinnest quite heavy lead foil. With the one or the other of these any part, no matter what the irregularities are, may be covered. Each patient ought to have his own shield. The shield, of course, must have a diaphragm through which the rays may reach the diseased parts. It has been recommended that the lead should be underlaid with paraffin paper so as to avoid lead contact. This is a minor point, but is important occasionally on account of contact sparking, as it is a non-conductor. The lead shield is to be held in place by a stand, if possible, and not by the individual. Many observers believe grounding of the shield to be an advantage, but I dare say it is done only exceptionally, and personally I rarely use it. As the large number of cases that come under the treatment of the dermatologist have affections of the face it is desirable to make a perfect-fitting mask. This is readily done by using a manikin.

TRIALS TO DETECT IDIOSYNCRASY.

All patients should undergo a few trial applications previous to any extended course of treatment on account of a possible idiosyncrasy of the patient towards the *x*-rays. This condition is denied by Kienboch and others. Nevertheless, these first carefully observed exposures demonstrate whether or not the individuals react suddenly and severely after such exposures. It is best to even have from five to ten days, or even longer, intervene previous to again taking up the application of the *x*-rays. I have never had such a case of idiosyncrasy. It is best to have the first sitting of ten minutes' duration with a tube of medium penetrating action, as will be described later, and the tube at about a distance of 20 cm., the second treatment given on the fifth to tenth day in the same way at a shorter distance, say 10 to 15 cm., and for at least fifteen minutes.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. W. T. Corlett, L. Duncan Bulkley and W. L. Baum.

I continue to follow this procedure in every case, because no patients are alike and the sensitiveness of each differs, as to the variation of dryness or dampness of the skin, in the acidity or alkalinity of the perspiration, in anemic or plethoric conditions, in electrical resistance.

HOW TO MEASURE THE ENERGY.

Freund and Schiff are usually quoted in the matter of the treatment of skin diseases by the *x*-rays. Their directions are to use a current of 12 volts and not more than 1.5 amperes with a spark length not exceeding 30 cm. and with 800 or 1,000 interruptions per minute.

The ordinary method in use to register the amount of energy going through a Roentgen tube is by stating the amount of amperes and volts or Watts passing through the primary windings of the coil. This method does not measure the amount of the electric energy at the terminals of the secondary coil, but measures the energy at the primary.

The conversion of the amount of electric energy supplied to the primary of an induction coil and the amount received at the terminals of a secondary depends on the design of the induction coil. One make of coil will produce with 1.5 amperes and 12 volts (or 18 Watts) passing through the primary a 20 cm. spark, while another with the same primary energy will only produce a 5 cm. spark. This difference depends on a number of factors, as:

(*a*) On the number of ampere turns of the primary to that of the secondary windings.

(*b*) On the amount of space (air gap), on insulation between the primary and secondary, and also on the insulation of the winding of both coils.

(*c*) On the primary iron core, thickness, length, on number of wires and quality of iron core (magnetic lag).

(*d*) On the number of turns and thickness of the wire of the secondary.

(*e*) On the type of the interruption, whether the primary current is made perfect and broken sharply or otherwise.

In consideration of these facts a statement of amount of amperes and volts passing through the primary gives very little information as to the actual energy passing between the terminals of the secondary. It probably would be quite as correct to state the electrical energy of a static machine by measuring the amount of current passing through the electric motor driving its revolving plates.

Very early after the discovery of the *x*-ray it occurred to many to register the efficiency of an *x*-ray tube by standardizing the degree of *x*-ray light by the penetrating power of its *x*-rays through various dense metals. These consist essentially of varying number of superimposed aluminum plates and then evening them with the aid of a fluoroscope. Luck octinometers or skiameters are somewhat but not extensively used.

HOW TO JUDGE THE STRENGTH OF A TUBE.

As a standard for judging the strength of my tubes, i. e., for measuring the electric energy consumed by any tube, I wish to mention a method which is simple, cheap and that can be used on all coil and static machines or for any electric energy operating an *x*-ray tube. A separate shunt is introduced into the secondary, i. e., parallel to the *x*-ray tube by means of two sliding contact points. If the amount of electric energy is to be measured the points are brought within such a distance of each other that the energy passes between the points of the shunt-spark gap. This method will measure with comparative accuracy the length of the spark in cm. which a tube will consume. This taken in conjunction with a tube of definite size and distance of the terminals with a general statement of its apparent degree of vacuum—soft or hard—will give a fairly correct definition of its power. Of course, the fluoroscope must be used to give us information as another corroborative test, but the former method is of prime importance, because by its use we can prevent an excess of electrical energy passing through and around the tube and thus limiting the power of the tube as much as possible to the production of *x*-ray, with the avoidance of an excess of heat rays and possible sparking around the outer terminals of the tube. In this manner it is possible to find the spark length that the vacuum tube will show its greatest efficiency. It also serves the purpose of demonstrating a soft or a hard tube, provided the size of the tube is taken into consideration. Hence the apparatus, whether with induction coil run with 12 or 110 volts, or even more volts, as in some static machines, makes no essential difference, if the previous mentioned mode of measurement is used.

THE VACUUM AND ITS REGULATION.

Now with the strength of the current measured there are three other important factors to consider:

1. The tube—the vacuum.
2. The position of the anode, and the distance of the tube from the skin.
3. The length of time and frequency of the sittings.

For all practical purposes at present all tubes are of two types:

(*a*) In which the vacuum can be regulated and which may or may not be automatic.

(*b*) In which the vacuum can not be regulated and which are not automatic.

Both types vary as regards size, shape and position and shape of terminals. These conditions are of importance. The tubes which are extensively used are the Gundelach. This has a vacuum which can be regulated. The Mueller tube with vacuum which can be regulated and which besides is automatic. These two tubes will suffice to explain. It will be unnecessary to go into detailed description of them, as they are the tubes in general use.

The second type of tube, the vacuum of which is neither adjustable nor automatic, need not at present be considered, as they are scarcely ever used.

Roentgen, from a physical view, divides all tubes as regards their vacuum either into hard or soft. In the former a more or less perfect vacuum exists than in the latter.

Kienboch divides tubes into five divisions which correspond to the variations of the vacua:

1. Too hard tubes (no light, no *x*-rays).
2. Hard tubes (light, little contrast picture).
3. Medium soft tubes (good, contrast picture).
4. Soft tubes (large quantity of *x*-ray—not penetrating).
5. Too soft tubes (no *x*-ray—electric energy is converted into heat).

Alhers recognizes four divisions. These he establishes by the color of the bones of the hand on the fluorometer:

1. Hard (gray).
2. Medium soft (gray-black).
3. Soft (deep black).
4. Very soft.

The latter two divisions of Kienboch and Alhers are made from a practical standpoint.

It has been stated and it is generally upheld that fairly soft tubes give quicker and more effective results

than hard tubes, although Schiff recommends the latter for our therapeutic uses.

A few axioms in regard to the tubes may be enumerated and may be of value:

With the mode of measurement suggested it holds true that the higher the vacuum the larger the spark (in the shunt). A large quantity of fluorescence does not necessarily mean a large quantity of *x*-rays. It usually means a low vacuum or signifies a fresh tube. It depends on the composition of the glass used (or on the deposit of aluminum on the inner wall of the tube, as in old tubes). It is explained in this manner: In a fresh tube the particles of aluminum have not been deposited on the inner wall of the tube (i. e., not on the light hemispheres). In an old tube where this deposit has taken place there must be a larger amount of current for the same amount of glow, i. e., compared to a fresh tube, because electricity passes over the aluminum surface and passes to the anode. This shows that the glow depends on the amount of bombardment directed on the illuminated hemisphere.

The fluorescence should always be evenly distributed over one-half of the hemisphere. Irregularities, as bright areas, may denote a tube of high vacuum.

RELATION OF HEAT RAYS TO X-RAYS.

Do not use too soft a tube. It may not produce sufficient *x*-rays for the treatment of skin diseases. Suitable *x*-rays can only be produced in tubes of medium vacuum. In a quite low vacuum tube the electric energy is converted into heat rays. The fluorescence of tubes changes by long use, and especially by the use of excessively strong currents.

It is the aim to run a tube at its highest efficiency, i. e., to produce the greatest quantity of *x*-rays from the least current that passes through the tube. An anode that becomes red hot shows that the current in part in these cases is in part converted into heat and not all into *x*-rays. These are not to be used in skin *x*-ray work. In these cases more electricity is being passed through the tube than the vacuum of the tube can convert into *x*-rays. There must be a certain degree of vacuum, otherwise there is no conversion into *x*-rays. To explain: If a high vacuum tube and a 15-inch spark is passed through a terrific amount of *x*-rays is generated. The same spark in low vacuum tube the electricity is partly converted into heat, then the anode disintegrates, and even a puncture of anodal plate may occur—this may then lower the vacuum still more.

THE POSITION OF THE TUBE.

As to the position of the anode and the distance of the tube from the skin. The general consensus of opinion as regards the anodal plates is that the rays are thrown at right angles, i. e., the angle of incidence equals the angle of refraction. There are intratubal poles which vary in shape. Those that are flat are to be preferred; the rounded ones have distinct disadvantages.

The distance of tube is usually 5 to 15 cm., according to the strength of tube used. When enforcing parts beyond this distance the efficiency becomes less, if nearer a more rapid and intense reaction will probably occur. The distance is best measured from the focus of the anode; the size of tube is always stated. Also measured from the tube. My measurements have reference from tube because I mention size of tube, shape of tube and also its spark length and about its vacuum, etc., and it is as accurate as possible. Codman uses to demonstrate this fact the simple law of light or any other energy radiating from a point:

If A is the focal point and 2 twice the distance of 1, then 2 will be four times as large as 1, and the intensity of radiant energy reaching it will be one-fourth as great, i. e., the intensity of the *x*-ray raises inversely as the square of the distance.

Codman has also stated that the danger from burns, like the intensity of *x*-rays, varies directly as the time and inversely as the distance. Furthermore, he has stated that one exposure producing injury has been at a distance of 2.5 cm. for 5 seconds, and another at a distance of 60 cm. for 28 minutes and 48 seconds.

In practice the distance and length of time is constant, but as to the number of sittings of treatment is indeterminable beforehand. Sometimes twice daily or but once and again three times a week may be desirable. Again, the individual sittings may increase to 15 or even 20 minutes' duration. During the early manufacture of *x*-ray tubes the spark gap was utilized to distinguish hard and soft tubes for trade purposes, but latterly some other method is employed.

SUMMARY.

Now, after having considered all these factors: strength of current, tube, the vacuum, position of anode and distance of tube, length of time and frequency of sittings, etc., the dosage may be regulated by (1) increasing or decreasing the *x*-rays, (2) applying them in a more or less intense manner.

The former depends then on the tube used if the efficiency is measured as suggested, and not as to what kind of induction coil or static machine, or with the amount of volts or amperes. The latter condition is fulfilled by either increasing or decreasing the distance at which the tube has its best efficiency for working purposes, and also by the length of the individual and amount of total applications of the rays.

DISCUSSION

ON THE PAPERS OF DRS. HYDE, MONTGOMERY AND ORMSBY, PFAHLER AND SCHMIDT.

DR. W. A. PUSEY, Chicago—It is constantly said that we are in the dark, both as to the indications for the use of *x*-rays and as to the means of applying the agent, and that the whole question is still experimental. I wish to emphasize that these papers all indicate just the reverse facts. The writers are from different parts of the country and have arrived at their results independently, and yet they all present practically the same findings. I know of no method of treatment used in any disease concerning which the observers are more unanimous in their reports. Men differ as to the minor details, but in the larger and more essential facts it is remarkable that the agreement should be so close. I am pleased to find that the experience of the different writers and their opinions correspond so closely with my own.

I have reported my experience in the use of *x*-rays in malignant disease very recently, and, therefore, I will not attempt here any discussion or any report on my own cases.

Regarding epithelioma Dr. Pfahler refers to one case that got well after treatment was stopped. I have a most interesting case of that sort in my records now. In my article in THE JOURNAL of the American Medical Association, April 12, 1902, I recorded among other cases one of orbital carcinoma which I had discharged as hopeless. It was a carcinoma which had destroyed the eye, involved the entire orbital cavity and spread within the cranium. After two months' treatment he was discharged as hopeless on account of the development of evidence of rapid intracranial growth. There was at the time of his discharge an acute dermatitis over the affected area. This was on Nov. 25, 1901. On April 30, five months later, I received a letter from Dr. T. Sprague of Sheffield, Ill., reporting that the disease has all practically disappeared, "the patient eats and sleeps well, uses no anodyne and has no pain." In spite of the fact that this patient was given up as hopeless he continued to get better for six months after treatment was dis-

continued. It seems to me that such a case puts us in a position where we can not refuse to treat carcinomas, no matter how apparently hopeless they seem to be.

One of the statements most surprising to me is the one sometimes made that patients show no idiosyncrasy to *x*-rays. There is no question that patients vary enormously in the susceptibility of their tissues to *x*-ray effects. Some patients will give a reaction in two weeks, while other patients under similar conditions will not show the same reaction in less than two months, and I believe it should be emphasized that we must pay close attention to this factor in handling our cases. I was interested to find that Dr. Montgomery has used this treatment in acne, psoriasis and blastomycosis. I have recently reported, in the *Journal of Cutaneous Diseases*, my experience in acne. I have seen no method of treatment in acne give results so surprisingly successful as those following the use of *x*-rays. I have also used the treatment with success in chronic inflammatory processes like psoriasis. I have recently treated a very extensive tumor of the knee, in which a diagnosis of blastomycetic dermatitis was made on the histologic findings, and the case has gotten entirely well.

DR. H. W. STELWAGON, Philadelphia—There is one point not brought out in the discussion—the protection of the operator's hands—that I would be glad to hear about.

DR. C. E. SKINNER, New Haven, Conn.—As Dr. Pusey has just said, the experience of almost everyone is identical in this matter. I have had some 45 of these cases under observation during the past seven months; 6 of them have recovered, and the vast majority of the remainder are showing marked signs of improvement, some of them very marked. With regard to idiosyncrasy I have been much impressed by the prominence which it assumes in the problem. Some patients will exhibit evidences of dermatitis after two or three treatments, while others will accept an enormous amount of raying without manifesting any reaction, apparently. I use pure sheet tin for protecting the sound skin, and it has given me entire satisfaction. Thick rubber sheeting is recommended for this purpose by Dr. Albert C. Geyser of New York, and it is perfectly effective as a protective. In addition it has the advantage of not drawing off current from the terminals of the tube. For the protection of my hands I use an ordinary glove backed with rubber sheeting, one-eighth of an inch in thickness.

My results in the matter of scar tissue after healing have been extremely good. I have observed contraction and hardening of the skin in but one case. The original pathologic condition in this case was a large, deeply broken-down sarcoma of the neck. It healed very rapidly, requiring only six weeks, and in some spots the skin is considerably hardened and tight. Relief of pain is a phenomenon that has followed the application of *x*-radiance in nearly every case that I have treated. This has held true even in the deep abdominal cases.

A fact that I consider worth mentioning is that the brush discharges from the positive pole of the static machine given in alternation with *x*-light during successive seances, will sometimes hasten the progress of a case. This was first suggested to me by Dr. William Benham Snow of New York, and I used it first on a case of lupus that was proving refractory to *x*-radiance alone. Since then I have seen it act most kindly on cases of superficial cancer that had broken down, and which were not apparently making any advance, or but little advance, under *x*-light alone.

Another point that has excited my attention is that discontinuance of the application of the rays after the patient has had a few treatments does not always mean cessation of the curative process. For instance, I recall one case of epithelioma of the lip, the size of a half dollar, which I had treated for several weeks with but the slightest evidences of improvement. He was then attacked by the grippe, which laid him up for five weeks. He then appeared for resumption of his treatments, but his cancer had in the meantime diminished to the size of a silver three-cent piece.

As to whether or not there is a choice as between the static machine and the coil, I will state that I use both. In the superficial cases I do not think it matters which is used, but in the deeply-seated cases the static machine is, I think, to be preferred. In many superficial cases the cure will be hastened by getting up a little dermatitis, and here the coil through its unquestionably greater tendency in this direction, offers a questionable superiority. In deeply-seated cases, however, the end to be attained is penetration with as little integumental disturbance as possible, and here the static machine undeniably has the advantage.

With regard to what Dr. Schmidt said, that the anode of the tube should not be heated red hot for the purposes of x-ray therapy, I will state that my anodes are nearly always red hot and frequently white hot. It seems to have made no difference and the cases have gotten well just the same. In the case of the large sarcoma of which I have just spoken, I used a static machine and pushed the tube as hard as I could at each treatment, and the anode was always white hot, yet he got well with only seventeen treatments. This tube also, by the way, was of high vacuum, which I think disproves the idea that many of us used to hold, that coil currents and low vacuum tubes constituted the only apparatus capable of curing cancer. I do not think that heating anode exercises any influence on the curative properties of the rays, except in so far as that the radiance reflected from an anode excited to this degree ordinarily possesses greater penetration and greater volume than when the anode is backing up a current, the intensity of which is low enough to allow it to remain cool.

DR. C. W. ALLEN, New York—I think this Section has the distinction, and I regard it a proud one, of being the first gathering of scientific men in this country to acknowledge and to put on record the fact that the *x*-ray treatment of some skin diseases and of certain cancerous diseases is no longer in the experimental or doubtful stage. I had watched the work of Dr. Pusey and watched it carefully, and I saw results from his work which I did not know how to obtain in any other way, and so I took up *x*-ray therapy to aid me in my work, and it has aided me materially, and I would be very loath to-day to give it up. I think with the aid of the rays we can obtain results that can be obtained in no other way. I am not in a position to say to-day that *x*-rays will cure cancer, but I can say that with their aid one can cure many cancers. You have got to have behind your *x*-rays a knowledge of the conditions present, a knowledge of your patient and a knowledge of medicine; you have got to study the case and use at times other measures, and always care and judgment. The doctor who knows what he is about can cure a great variety of cancer with the aid of the *x*-rays. But I think a note of warning should be sounded, and if I do nothing else to-day I want to say that I believe unless we move very carefully *x*-ray treatment will fall into disrepute and it will get a black eye. Patients will die now and then and there will come a public resentment against it because a next-door neighbor died quicker under the rays than he might have died without them. The *x*-ray is a powerful remedy to use, and you can kill with it as well as cure. You say you can not experiment, and you turn severe cases over to the man with the *x*-rays. It is possible that radiotherapy may hasten the death of those patients. They are suffering from a severe disease, and you are going to use something to get rid of the poisonous material that is in the system. That patient needs the most careful and conscientious physician, and that patient needs watching from moment to moment, and the treatment may save.

I am glad to hear Dr. Pusey speak of that patient who recovered after he had given him up. I can report a somewhat similar case. I treated a physician for cancer of the rectum who showed great improvement, but he had to stop treatment because of an intercurrent trouble. He had improved for two or three weeks, very markedly, but he had to stop. He was in such a condition they had to give him chloroform, and after a few days all the physicians who saw him said he was going to die. In twenty-four hours another consultation was held, and they said he would probably not last over forty-eight hours, and all attempts at medication and nourishment were stopped, as nothing could be retained. His condition was surely most grave. Suddenly, however, he began to improve, his severe symptoms gradually disappeared, and in time he began to

retain nourishment and then to sit up. He says he is going to resume the *x*-ray treatment, which he is sure has been of great benefit. I think the effect of the *x*-rays is still going on in his case, and that he is still benefiting from the treatment long after it was interrupted.

I have had some interesting cases. A boy of 15 has xeroderma pigmentosum and multiple epithelioma of the face. The eyes are involved and one has been destroyed. He is not cured yet of the lesions, but will be, I trust, after further treatment with the *x*-rays. The other eye is improving very much, and I hope it may be saved.

In another patient there was an ulcer on the side of the nose. He was treated in various ways by many physicians for two years, but the ulcer would not heal. I gave him twelve *x*-ray treatments and it healed up with a good firm cicatrix.

The *x*-rays are now being tried in all kinds of skin diseases, but probably after a year or two we will use them in a very limited number of cases only, perhaps in obstinate and persistent diseases like psoriasis, lupus, sycosis and some others.

I want to say a word about the idiosyncrasy to the *x*-rays, for I believe we should all be concerned with the idiosyncrasy of the various cases that come under our treatment. Individuals can not all be burned alike from the sun, and there is no reason why the *x*-ray should produce the same effect on all subjects. When Dr. Pusey was in New York he came to see me, and in showing him my technic I exhibited several patients, and I burned at least three patients the day he was there. Up to that time I do not think I had a burn, but I was letting my light shine, and perhaps let it shine too much. I asked him to criticise my work, and he answered in a very kindly spirit, "The only thing I can criticise is that you are using too great intensity of light." The results seen a week later proved the correctness of his judgment, of which I was conscious at the time. I believe you can burn almost any patient. I do not think it is only the occasional patient who has the idiosyncrasy; you can burn almost anyone if you go about it, and conversely most burns are preventable.

DR. G. B. MASSEY, Philadelphia—In connection with the question of *x*-ray burns of the hands I may quote a suggestion that a pair of gloves might be painted with metal paint, such as silver or bronze paint. It was claimed that such gloves were opaque to the rays.

I am convinced there is great value in the *x*-ray treatment for some forms of superficial cancer, and yet it seems to me in these skin cancers we have means already at hand that will be much quicker and surer, in the shape of zinc and mercury cataphoresis. So far as I have seen, these superficial skin cancers could be completely destroyed by this method in thirty minutes, and possibly under the use of cocain without general anesthesia. In the use of this zinc-mercury cataphoresis small points of zinc are amalgamated with mercury and inserted into the growth for the formation of oxid of mercury and zinc, under electrolysis, the product being diffused by cataphoresis. This application by cataphoresis devitalizes the whole of the growth, and at the same time sterilizes the slough and a region surrounding it. I had such a case on a man's arm, recently brought to me, which had been diagnosed as epithelioma. It was about three inches long and little more than skin deep. The skin had been destroyed and the disease had involved some of the superficial layer of the muscles of the forearm. He was a workingman, and was brought in by his employer, who was very anxious not to lose his services. I told him it was a case in which the *x*-rays should be tried, but it would take some time to ascertain if they would be effective. There was also a slight possibility of burn. On the contrary, if he wished the cataphoric method tried he would have to go to bed, would have to be prepared for an operation, hire a nurse, and would have to lay off for some time, but the chances were certain that the growth could be destroyed in thirty minutes. The patient selecting cataphoresis, the arrangements were accordingly made, and the method applied at his home under general anesthesia, and a current of 350 milliamperes. I prepared a leash of fine wires, twenty-five in number, and attached to each a zinc needle, amalgamated with mercury at the tips. The wires were plaited in groups of six, so that the wire would not snarl during the operation, and when the current was turned on the points were thrust into the growth in close proximity. So rapid was the effect that when five or six points were inserted the first of the series had to be withdrawn, as we wished only a slight action. In thirty-five minutes the whole growth was destroyed, an area of about three and one-half by three inches. He had no pain the next day, the nurse was sent home, the man lost only a few days' time, and it is completely healed. This is an illustration of the fact that we may be going a little too fast with the *x*-rays. I have recently applied the method just described in a minor way in a case of tuberculous glands of the neck, and succeeded in healing six or seven large tuberculous sinuses of the neck that have been open for six or eight years. The other side of the neck had been thoroughly scarred up by repeated curettements. So promising was the result that I thought I had the patient nearly well, but six months later a general swelling began, showing that there were a large number of slightly-enlarged glands deep down in the neck. I then used the *x*-rays to the swollen part, and she is improving steadily without any particular dermatitis being apparent.

DR. W. T. CORLETT, Cleveland—I think we are all agreed that the *x*-ray treatment in some diseases of the skin, and especially in epithelioma, has passed the experimental stage, and is a very valuable therapeutic agent that is going to stay. Doubtless we all have our favorite methods of treating slight epithelioma. For a number of years I have used electrolysis, which I have found excellent and most efficient. It has many points in its favor, but all cases can not be treated in this way. There are a certain number of cases that are inoperable by the knife, by caustics, or by any method hitherto employed. In such cases the greatest value of the *x*-ray may be found. Recently I had a case under treatment of epithelioma of the face involving both eyes, in which I had endeavored by various methods to eradicate the disease; electrolysis had been used, caustics had been thought of, but on account of the eyes it had not been attempted, and even surgeons had held out little hope. We were then considering the use of the *x*-ray—at that time I did not know that the *x*-ray was harmless to the eyesight; in fact, I was devising a pair of metallic spectacles to protect the eyes, when the patient disappeared. Some months later the patient came back to the clinic practically well. He said he had been to Edinburgh for treatment, and when I took him downstairs and showed him what we were doing he was very much chagrined to think he had taken such a long journey. I repeat, in such cases we get possibly the greatest benefit from the *x*-rays. Aside from epithelioma, treated of so ably by the other speakers, I have used the *x*-ray in other diseases of the skin. In a well-marked case of eczema, I resorted to different methods of treatment without much avail, when finally she was subjected to eight exposures of the *x*-ray, with a complete disappearance of the eruption. My first experiences with the *x*-ray were followed by disappointment. I did not know the importance of the tube, and that much depends on the one selected for different uses. Nearly three years ago I exposed a case of lupus erythematosus to the *x*-ray without any benefit. Twenty exposures were made. I finally discovered that tubes used continually soon become hard, and that I had been using a hard tube. I believe many failures in the use of the *x*-ray occur from improper tubes and faulty technic. I regard, therefore, Dr. Schmidt's experience as to technic as an extremely valuable contribution.

DR. R. R. CAMPBELL, Chicago—That idiosyncrasies do exist in this as well as in other lines and methods of treatment was pretty conclusively demonstrated to my mind in a case of tuberculosis verrucosa cutis which I had had under treatment for some time without any apparent improvement. I finally concluded to burn him. I took a tube of low vacuum and placed it at a distance varying from one to five inches from the seat of the eruption. After two weeks of daily exposures of 15 minutes each, I succeeded in burning the patient; the patient then disappeared for two weeks, and on his return, rather to my astonishment, the disease was almost well, and the dermatitis had almost subsided. I worked for 10 days to burn him again, then allowed the patient to stop all treatment

for a month, at the end of which time all evidence of the disease had entirely disappeared. This experience is quite in contrast to that of Kienboeck, who claims that idiosyncrasy does not exist. While we would hardly expect a recurrence in psoriasis to appear within a couple of months, I was glad to hear Dr. Montgomery's results in treating the disease with the *x*-rays. My experience in treating acne and rosacea with the *x*-rays quite corresponds with Dr. Pusey's, and I have obtained most satisfactory results in the treatment of intractable cases of both of these conditions. Varney, in discussing the treatment of lupus by the *x*-rays, compared the stimulating influence on the tissues with the similar action and results of Finsen's phototherapy. He stated the results are about the same, except that the *x*-rays are somewhat more rapid in their action with shorter exposures, and larger areas may be treated at a sitting. The treatment by *x*-rays is painless; its exposures are of shorter duration and the areas treated may be of almost any size and location. In the treatment of malignant conditions by the *x*-rays, considerable area beyond the actual lesion must be exposed, while in the treatment of lupus and like diseases only the active condition or surface is to be exposed.

Puncturing of a tube is, as a rule, the result of increasing the sparking pressure of the electrical current beyond the internal capacity of the tube. Certain applications of the foil to reduce a high resistance increase the risk of puncture to the tube, as the foil approaches the cathode or anode and in proportion to the sparking pressure of the bombardment.

DR. BEVERLEY O. KINNEAR, Clifton Springs, N. Y.—I have believed for a number of years that the central nervous system has much to do with the origin of skin diseases. I have treated a number of cases of eczema and herpes zoster, successfully and speedily, by the application of cold over the spine in the Chapman spinal ice bag. From this experience it seems to me that there must be an excitement in such disorders of the vasodilator nerve centers, which anatomically terminate in all tissue cells, and this may lead at first to redness and arteriole dilatation of the cutaneous blood vessels, with thickening and exudation, accompanied by itching and burning; or if it goes further to elevation of the cuticle and fluid exudations, as in eczema, and herpes zoster, according to the force of the nerve current. Then the query naturally arises, whether the nerve central excitement is not the direct cause at least of the skin disorder, though there may be underlying causes which induce the hyperemia, or excitement, or increased function, of the nerve centers supplying the skin. I ask also whether in the use of the *x*-ray any effect has been noted on the arterial circulation. Cold over the spine in spinal ice bags of the proper width will induce activity of the circulation all over the body, giving rise thereby to rapid molecular change, and I have healed large ulcers and absorbed exudations by this method of treatment. I would like to ask if any expert in the use of *x*-ray treatment has observed increased activity of the arterial circulation under the use of the *x*-ray. If this be so, I think it one way in which we may account for the results obtained by the *x*-ray in cases of epithelioma.

Once more, let us take the burn produced by the lighted end of a cigar—a most painful burn. The most efficient and speedy way to relieve the suffering caused by such a burn is to hold the injured part over a lamp or a hot fire. The suffering will be much increased for a few moments, but the cure is radical, and the pain ceases. May it not be possible, then, that the burn induced at times by the *x*-ray will act beneficially on an epithelioma, inducing a sedative action on the excited nerve centers; which excitement may be the direct cause inducing the epithelioma?

DR. H. R. VARNEY, Detroit—In answer to the question of the last speaker regarding the effect on the circulation, in applying the rays to the tail of the tadpole, there seemed to take place a change which was, I think, almost identical with a normal inflammation. I watched it before and during long exposures. The first change apparent was a slight increase in the blood current, followed very shortly by a slowing of the same. There was an increase in the number of blood cells, the white increasing more rapidly than the red. The white corpuscles passed through the lumen of the walls and surrounding tissue until the whole area was a field of cells. In producing the physiologic effect of the rays, what I deem an erythema, or a dermatitis, is produced, and I believe this condition to be a normal process of repair, an ordinary inflammation of tissue. My experience with the rays in the treatment of epithelioma and other skin affections, has been to produce a physiologic effect. I find it can be done more safely with a static apparatus than with the coil. I give daily exposures until this effect is produced, when the patient is discharged for ten days or two weeks, after which, if it be a case of superficial epithelioma or ulcer, he returns practically, if not entirely, healed.

Just here, I would like to ask the men who are working along this line, whether they have noticed any severe cases of rheumatism reflected after exposures to the ray. I have several such cases after treatment has been given from a week to a month, and for the first time in the history of the patient. I would like to know whether any increase of solids has been noticed in giving this treatment, and if a toxemia is not produced, that will account for this painful condition resembling rheumatism.

DR. M. L. HIEDINGSFELD, Cincinnati—My experience at the present time dates a little over a year, and for the treatment of certain conditions, lupus vulgaris, dermatitis hiemalis,[1] and for certain forms of epithelioma, I am very favorably impressed with its use. I am also very favorably impressed with the relief which *x*-rays afford to the distressing symptoms, which occasionally accompany keloid, and recall one case, keloid of the left arm in a physician's wife following a burn from cleaning a full-dress glove with gasoline, where the relief has been almost a godsend. In some other conditions I am not so favorably impressed, particularly the treatment of alopecia areata after the method of Kienboeck. The obdurate character of several of these cases[2] which successfully resisted for more than a year all ordinary therapeutic measures recommended: chrysarobin, oil of mace, glacial acetic acid, pyrogallis acid, cantharides, etc., induced me to try the *x*-rays. A favorable case of alopecia areata circumscripta with multiple patches afforded me an opportunity to determine its efficacy by means of a control experiment. The *x*-ray was limited to one patch, another was left untreated and the remaining were subjected to the action of trikresol as recommended by McGowan of California. After an interval of about twelve weeks the patches treated with trikresol were richly covered with a luxuriant growth of lanigo hair and the untreated area and the area exposed to the *x*-rays remained unchanged. Trikresol was then applied to the remaining patches, with the result that the untreated area promptly recovered its hair, and the *x*-ray area has made but little improvement after a subsequent interval of almost two months. The *x*-ray has, therefore, retarded rather than aided the progress of this case.

Another affection, in which I believe the *x*-ray is not always productive of the best results, is lupus erythematosus. My experience may have been singularly peculiar in this affection, but every case which has been subjected to *x*-ray influence, however brief, has been followed by a rather intense and distressing reaction.

DR. DAVID LIEBERTHAL, Chicago—About a year ago I was still skeptical about the value of the *x*-ray in the treatment of cutaneous cancer after having subjected it to a case of epithelioma, developed on the scars of lupus vulgaris, for a period of three months without beneficial results. Shortly afterward the epitheliomatous matter was removed by Dr. L. Greensfelder at the Michael Reese Hospital, the defect being covered by a flap, the results of which operation he will report in the near future. But since I saw the excellent results which Dr. Pusey exhibited I lost a good deal of my skepticism and I am employing the *x*-ray now in epithelioma as in various affections of the skin.

Although we can not expect to obtain good results in every case, we have nevertheless a valuable method in the *x*-ray. As in deep-seated or extensive carcinoma it is well first to ascer-

1. See discussion on Dr. Corlett's paper on dermatitis hiemalis, THE JOURNAL A. M. A., Dec. 20, 1902.
2. Cincinnati Lancet-Clinic, September, 1902.

tain the opinion of the surgeon, so it would be advisable to consult the dermatologist before the *x*-ray is applied for an affection of the skin.

Regarding my own experience with it, I can report the following: Two cases of epithelioma originating from senile warts, both cured; five cases of ringworm of the scalp in which from six to twelve exposures produced total alopecia in the areas treated and in which the slight irritation soon subsided, and subsequent repeated attempts at cultures from the hair follicles proved negative; and one case of cutaneous tuberculosis which yielded splendidly and is healed over. Cases of acne rosacea and psoriasis showed improvement.

DR. PUSEY—I have not seen rheumatism that could be apparently attributed to the treatment with *x*-rays. Several gentlemen have spoken in this discussion about some poison being liberated in the system from neoplasms degenerating under *x*-ray treatment. I believe that there are no good grounds for such assumptions. It is theoretically possible that such a liberation of poisonous material might occur, but I have seen nothing to indicate that it does. I have seen large masses of carcinoma tissue and of gland tissue in Hodgkin's disappear, and I have never seen any symptoms to indicate that there was a liberation of any substance in the destruction of these tumors that in any way affected the patient's condition.

DR. C. E. SKINNER, New Haven, Conn.—In deeply-seated abdominal cases my experience so far has been that we do secure improvement usually and that we ought not to consider the rays inefficient in this situation as yet. It is only a question of how far the improvement can be carried. Up to the present time the improvement which I have noted has consisted of increase in weight, relief of pain, increase of appetite, and lessening of discharge where any was present. In one case of cancer of the uterus involving the bladder and rectum, improvement along these lines was marked and in addition the growth itself had diminished in size as a whole. All of a sudden, however, she developed uremic symptoms and died in a week. In view of the fact that she had been improving markedly up to this time, the sudden development of renal trouble might be construed as indicating that a toxin of some sort had been developed or liberated. I think we ought to be careful to recognize and weigh all the elements that appear in these cases.

DR. MONTGOMERY—Dr. Allen has very properly called attention to the danger of radiotherapeutics in the hands of the unskilled and inexperienced. We shall be fortunate, indeed, if, for a time at least, more harm than good is not done with this comparatively new therapeutic agent as the result of its indiscriminate use by those who lack the requisite skill for its successful and safe administration. Papers like the excellent one just read by Dr. Schmidt, giving full details of technic, will be of great value to those desiring to take up this work; but even with full instructions the beginner can not be too cautious in acquiring the experience necessary to a safe use of this somewhat uncertain therapeutic agent. There is a tendency to use the rays for all sorts of cutaneous and other disorders for which we have no other specific treatment, and there is no doubt that we are all using them now in a tentative and experimental way in cases for which the older and better understood methods will prove to be preferable. In other words, it is probable that as our experience enlarges we shall find that radiotherapy and phototherapy, while exceedingly valuable in certain disorders, will have a narrower field of usefulness than that in which we are now trying to apply to them. We have had good results in a few cases of acne and rosacea. Dr. Pusey refers to the use of the rays in a case of blastomycosis. In two of our recent cases, areas which persisted after a long course of potassium iodid disappeared quite promptly after a few exposures to the *x*-ray.

The matter of personal idiosyncrasy is, I believe, an exceedingly important one, and I am glad that the other men have spoken so strongly on this subject. Practically the only guide we now have in the treatment is the reaction in each individual case.

It has been suggested by two speakers that the Finsen light was for all practical purposes identical with the *x*-rays. The immediate results of the treatment are quite different. With the Finsen light an exposure of ten or fifteen minutes will result in a dermatitis often vesicular or even bullous. Reaction occurs within twelve hours and disappears in a few days. No deep burn is ever produced. On normal skin pigmentation follows such a reaction and serves to protect the tissue from the light, so that a second treatment produces, as a rule, little or no reaction. In the diseased areas this protective pigmentation does not take place, and the reactions to successive exposures are like the first. With the *x*-rays, on the other hand, not only is the reaction slower in appearing, more persistent, and deeper seated, but reactions to successive treatments on both normal and diseased areas come, as a rule, more promptly and are more severe than those obtained from the first application. As to ultimate differences, we have found cases of lupus erythematosus and at least one case of lupus vulgaris in which the Finsen light has proven more effective than the *x*-rays. In at least one case of verrucous tuberculosis and in some other cutaneous affections the *x*-rays have given excellent results where none was obtained with the Finsen light. Our experience is as yet too limited to let us determine accurately the factors which cause one method to be more effective than the other in a given case.

DR. PFAHLER—I want to correct the statement of Dr. Pusey that I said no case of cancer had been cured. My paper states that cases have been cured and others are still improving under treatment. Another point that was brought out in the discussion was the protection of the hands of the *x*-ray worker. I use a mitten made of chamois skin covered on the back with lead foil and a piece of adhesive plaster over the foil. In regard to the point of heating the platinum anode, I always have my anode red hot, often white hot. I fully agree with Dr. Corlett and Dr. Allen that this is not only a very valuable therapeutic agent, but also a dangerous one.

DR. SCHMIDT—I think a large number take no precaution whatever to protect the hands of the operator. In fact, I think there is nothing to be applied or that can be applied to prevent the *x*-rays doing any damage, if an idiosyncrasy of the individual exists. The patients that come to us with *x*-ray dermatitis are those who do a great deal of photographic work. They handle chemicals and then possibly with the action of the *x*-rays a dermatitis is readily set up.

In regard to what Dr. Skinner said about heating the anode red hot or white hot, I am pretty positive that when we take a large number of workers in this field they will agree, if such a condition occurs, the tube is of a very low vacuum, and in addition to that there is an excessive amount of electricity passing through and some of the electric energy is converted into heat rays instead of *x*-rays. If any such condition exists for a long time, a puncture of the anode may readily occur.

TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR.*

CHAS. E. THOMSON, M.D.
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For fifty years or more we find a sentiment pervading medical literature on the subject of fracture of the neck of the femur; that it is an irreparable injury; that a large percentage of these cases, being old, die of the trauma and shock following the accident, or the complications incident to it, viz.: Hypostatic congestion of the lungs from recumbent position or sepsis from bed sores; that the majority of those cases who live remain permanently disabled, getting about only on crutches or canes, on a badly deformed or functionally weak limb, the so-called "fibrous union." In support of this sentiment allow me to quote from the days of Sir Astley Cooper down to the latest literature obtainable, as taught in text-books on surgery, medical journal articles and medical schools.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. H. O. Walker, A. J. Ochsner and DeForest Willard.

THE OLD TREATMENT.

COOPER.—In reference to the first-named author, that great surgeon admits that he had never seen bony union in a case of intercapsular fracture of the neck of the femur. His treatment consisted in placing the limb on a long pillow for ten days or two weeks, afterward allowing the patient to be up and about on crutches.

SAMUEL D. GROSS, in his admirable work, Vol. I, p. 1027, commenting on the treatment of Sir Astley Cooper twenty years ago, considered it too pessimistic and added that for many years he had been in the habit of treating fractures of the femoral neck (intercapsular) as any other fracture of the femur, viz., extension and counter extension, not with the hope of obtaining bony consolidation, but with the view of keeping the ends of the fragments in more accurate contact and thus affording them an opportunity of becoming united by fibro-ligamentous tissue.

AGNEW.—Writing one year later, Vol. I, p. 931, the great Agnew also criticised Cooper's treatment and advised treating fracture of the femoral neck on the same general principle as fractures elsewhere in the bone, viz., by extension on a straight or an inclined plane, adding that we have seen enough of fractures that were "believed" to be intercapsular recover with bony union to justify such procedure.

ECKHART MINES, MD., *North Carolina Medical Journal*, January, 1885, Vol. xv, p. 309. Youth of 18, crushed by fall of coal. Two inches shortening, inversion, no crepitus. Diagnosis: "The readiness with which the leg is brought down, absence of crepitus, coupled with the fact that after five weeks no attempt at union, nor discoverable callus thrown out, warrants me in believing that the fracture is within the capsule. Treatment: leg supported by pillows three weeks, Porter's modification of Smith's ant. splint, two weeks, further treatment useless. Allowed on crutches. Condition at writing: Shortening apparent enough, wears a high heel and walks with a peculiar rolling gait."

DR. SWING, Coatesville, Pa.—Lost 16 cases out of 18. All died in from six to nine weeks. Ages 70 to 80. Treatment: extension, counter extension and weights to limb and sand bags. Cases developed bed sores.

In subsequent case allowed patient to move about on mattress, got well with shortened everted limb, but could walk about her room last year of her life. Two years later second case could walk with crutches after two months, limb shortened and everted, lived one year. The doctor considered "the only rational" treatment to be to allow patient to move about on mattress of hair. He finds they will get well if spared the necessity of useless apparatus and will recover with as good a limb as they are likely to have if they could survive the torture of the apparatus. This treatment saves life and suffering. All treatment should have these two ends in view, rather than the glorification of the surgeon in displaying his skill in adjusting apparatus and setting limb. He feels sure that some of his cases would have gotten well if they had been "let alone" instead of receiving the orthodox treatment. He concludes by saying "the surgeon is not a mechanic to adjust appliances, but one whose judgment and experience should determine their necessity."

EVERHART, Scranton, Pa.—I am indebted to Dr. Everhart for report of the following case: Mrs. H., aged 71, in 1896 fell down stairs, was picked up and put to bed, about ¾-inch shortening, suffered considerable pain, but did not have much deformity for four days, when she suddenly sneezed and at the same time felt something give way in the hip. Upon measuring the hip 1½ inches shortening was found. The limb was markedly everted.

June 7, 1902: patient is still in bed, where she has remained for six years; 2 inches shortening, marked external rotation. Patient suffers great pain in hip, which is aggravated on slightest movement.

CORSER, Scranton, Pa.—I am indebted to Dr. John Corser for report of the following case: Mrs. C., aged 65, in 1887 fell, fracturing her hip; patient was put to bed, where she remained for 15 years, when she died of exhaustion. During all these years was unable to walk or help herself in any way.

W. PUGIN, Thornton, April 2, 1894.—Patient, aged 87, was knocked down by horse, chloroformed, crepitus found, long splint, four nurses for 3 weeks. Water bed for one month. Got bedsore while on water bed. May 2 splint taken off and sand bags used. Four and a half months in bed, now goes about in bath chair; is able to walk a short distance with crutches. I do not expect he will improve much in this respect on account of his age.

OSCAR H. ALLIS.—*Medical Times*, August, 1883: "From first to last I make the patient my first care and regard the fracture as of secondary importance." He recommends getting patient up in rocking chair at end of first week, and from the first daily shiftings in bed. He thinks that getting patient up daily, carefully, does not produce separation of fragments. "In conclusion, I ask what has been, is and must ever be the outcome of all this? Will the surgeon risk his little all for the good of his patient or must he steer his course for that true but selfish standing, 'Self preservation is the first law of nature.'?"

HENRY LEHENAN.—Read March 19, 1894, before the Philadelphia County Medical Society: Mrs. ———, aged 60, fell Jan. 23, 1881, while attending household duties; was not dizzy at the time. Saw her first Jan. 24, 1881. She was then lying on a couch and was unable to stand or move about. On examination, from the preternatural mobility, intracapsular fracture was diagnosed. My attendance was continued at intervals during the months of February, March, April and May. She was not able to help herself in any way. By help she could be gotten on a Charleston chair, and this was the only treatment attempted. The most of her pain was in the adductors; there was shortening and eversion of toe. She continued in the same room and on the same couch and chair until I was called to see her, Jan. 6, 1884, when I found her dying from exhaustion. She died January 8. Permission was granted to examine the hip. Specimen here presented was obtained. The acetabular cavity was normal in appearance. The head of femur lay in cavity free. The socket and head of bone were covered over with a membrane firm but somewhat incomplete. Upon this surface the upper extremity of the femur had formed an artificial joint, the neck having been absorbed. In the surrounding tissue on the inner side was a fragment of bone 1½ inches long.

SCUDDER.—"In case of fracture of the neck of the thigh bone occurring in elderly individuals, treat the patient and let the fracture be of almost secondary importance." Again: "The impacted cases will unite; the unimpacted may unite." And again: "In only two cases out of sixteen could it be said that the leg was functionally useful."

PARK.—"Treatment must be so ordered as to save life even at the expense of an imperfect leg."

BERGER.—Gould's Year Book, 1897, p. 357: "In articular fractures those only in which operation is justifiable are about the elbow and knee, because an imperfect result here means a most grave functional loss."

AMERICAN TEXT-BOOK OF SURGERY.—Page 310, 1892, recommends extension and fixation with sand bags and plaster of paris, and in ununited fracture reports that several cases have been cut down on but fail to give results of such operations.

CURTIS.—"In certain cases, of over 60 years of age, give up the idea of bony union."—From lectures on surgery, University of New York.

From the above it is apparent that at least a goodly number of our authors have been rather skeptical about obtaining bony union in those cases, and in discussing the subject, both in medical societies and in private conversations, I find the average practitioner—under whose care those cases are usually treated—is satisfied if his patients are able to hobble about on crutches for the remainder of their lives, nor has this pessimistic standing been confined to cases treated by ordinary methods and general practitioners.

THE OBTAINING OF BONY UNION.

BRYANT.—Having reported 6 cases from König, Cheyne, Myre, Gillette and Curtis, all of whom obtained firm bony union and strong useful limbs, Dr. J. D. Bryant, in his valuable work on operative surgery, vol. ii, p. 1279, 1901, concludes as follows:

"There is yet a reasonable doubt regarding the advisability of this operation except in special cases. The difficulty of securing and maintaining proper adjustment of the fragments because of the lack of command of the inner portion, its porous character and low vitality, present obstacles to success that can not be gainsaid. The degree of shortening that follows the successful results suggests an initial failure of reduction of the deformity or the maintenance in proper place, and bespeaks in any event a considerable amount of absorption at the seat of the fracture. A more extended experience is needed and a careful comparison of the favorable results by different methods of treatment is required before a final judgment can be recorded."

BERGER.—Gould's Year Book on Surgery, 1897, p. 357: "In articular fractures those only in which operation is justifiable are about the elbow and knee, because an imperfect result here means a most grave functional loss."

Is not the hip joint an important one and quite as worthy as the elbow and knee of our special consideration? I am pleased to add Cases 5 and 6 to the successful operative list, and hope that others may be added in sufficient numbers to put the operation out of the experimental class beyond all doubt, even in the minds of the most skeptical.

Among the authors that have written more hopefully on this subject are Hamilton, Wyeth, Dennis and Ridlon.

RIDLON.—The last-named surgeon, in his excellent article on treatment of fracture of the femoral neck, Annals of Surgery, July, 1901, has so fully expressed my views that I take the liberty of quoting from it as follows:

"Let me assure you, gentlemen, that in all these cases a strong and useful limb, in good position, may be as confidently anticipated as in any other fracture of this bone or any other bone. In no other fracture is the surgeon's task easier; in none is a good result more certain." Again: "I believe we can only treat the patient properly, by properly treating the fracture from which she is suffering and likely to die." And again: "The average surgeon treats fracture of the neck of the femur precisely as he treats a solution of bony continuity where he aims to get a false joint; and, verily, he usually has his reward. My plea is simply this: Show the fracture at the neck of the femur the same consideration that you show all other fractures. It is useless to quibble about fractures within the capsule and fractures outside the capsule; fractures impacted and fractures unimpacted; about the thin, weak bone of fat old women; these cases invariably result in strong and useful union if they are given a fair chance."

I cannot possibly improve on the above quotations, nor write anything that more aptly expresses my views. I could never understand how any thinking man can pretend to benefit his patient in any way by leaving a fracture unreduced and unimmobilized. I suppose men who have never reduced nor immobilized a fractured femoral neck cannot be expected to have noticed the great relief given to a patient by such a procedure.

METHOD OF TREATMENT.

I regret that I have to differ from my friend, Dr. Ridlon, in his method of treatment, yet I believe he has the most complete and efficient apparatus ever devised for the treatment of fracture of the femoral neck, but such apparatus is made well only by skilled mechanics, whose work is expensive and hard to obtain when most needed. Then, again, each case requiring a specially made apparatus, a number of circumstances may arise causing long delay and loss of valuable time, while the patient is suffering from unreduced fracture and the friends are impatient because the limb has not been "set." All this care may be obviated by the surgeon who carries in his satchel sufficient material, and in his brain sufficient intelligence, tact and skill to make a plaster-of-paris spica. That a surgeon should stop before he really commences to treat a difficult case and wait for the whims and efforts of a mechanic is surely a reflection and a humiliation on modern surgery and should not prevail. Then, again, I think my friend has rather overestimated the task of putting up a fractured femoral neck in plaster-of-paris spica. Beside the man who is giving the anesthetic, all that is required is a McBurney hip rest and one assistant with sense enough to do what he is told, and strength enough to make the necessary extension. Then, again, they speak of disturbing the fracture by changing the plaster. I have never found it necessary to change a plaster cast on one of these cases, and have frequently left them on three months, or long after the patient was up and going about. It is not necessary to get these casts soiled, and as to excoriations and bed sores, they simply never occur, if the plaster is properly applied. On the contrary, I frequently put on a plaster-of-paris spica to cure a bed sore; by so doing you can distribute the pressure and support the circulation, two very important factors in the treatment of bed sores.

What cases should be operated on? No recent case. Why operate when we get such excellent results without operation? The two cases I have operated upon, of three and eighteen months' standing, respectively, were not even diagnosed before I saw them. I think a fair rule would be that any case that remained ununited for three months and had received judicious care, would be a case for operation.

Dr. Bryant has said, Operative Surgery, vol. ii, page 1287: "In operating on cases of ununited fracture the refreshing of the ends of the fragments is a necessary step in the technic." I made no attempt to freshen the ends of bones in my cases and yet I got prompt and firm union.

The method of treatment I have used and intend to recommend, simply carries out the principle of treatment of fracture in any other bone in the body, viz.: Reduction of fracture and retention of fragments in corrected position, for sufficient length of time to allow Nature to make the necessary bony repair. This I believe to be best obtained by anesthetizing the patient, so as to relax the muscles and enable the surgeon to ascertain the exact nature of the injury and more completely replace the parts. Impacted fractures should be very carefully handled. In fracture of the femoral neck this is best accomplished by having an assistant make forcible extension on the limb (while a second assistant, the anesthetizer, makes counter extension from shoulders) until it is drawn down to equal length with its fellow, while the operator manipulates the upper end of the bone, reducing the fracture as well as possible; and holds it while the assistant carries the limb into abduction of about 10 degrees. This position of abduction has a tendency to hold the fractured ends together, and facilitates in keeping the patient clean afterwards. The operator now applies shaker flannel bandages to the entire limb and body, as high as the arm pits, amounting to about four layers. Over this is applied plaster-of-paris dressing (reinforced with soft steel plates at hip and knee) sufficiently strong to maintain the form. During the application of the spica the limb is constantly held by the assistant in extension and ab-

duction as noted above. Care must be taken for the first twenty-four hours that undue pressure or strain is not brought to bear on the plaster before it is sufficiently dry to resist. If at any time the patient complains of pain over prominent parts, as the knee or malleoli, a portion of the plaster may be removed to relieve the pressure. After the plaster has become sufficiently dry the patient may be turned from side to side to relieve the hypostatic congestion of lungs, or for the purpose of bathing. If the spica is continued sufficiently high on the thorax it will not materially interfere with respiration. It is only when it ends at the free border of the ribs that patient complains in this respect. By this method of treatment the patient is enabled to materially assist in the use of the bed pan without the danger of disturbing the fragments.

SUCCESSFUL CASES.

The following is a list of my own cases, together with a number of successful cases from other authors, that I take the liberty to present.

SHEEHAN.—*British Medical Journal*, 1895: January, 1893, J. H., aged 91, knocked down by cab; two inches shortening, no crepitus. Treatment: Extension, weight and pulley, sand bags. Allowed up in a few days, on crutches, got about until his death from nephritis, April, 1894. Specimen showed bony repair in good position. Amount of shortening not given.

JOYCE.—Page 907: Dec. 28, 1895, patient fell while intoxicated, three-quarter inch shortening. Treatment: weight and pulley. Jan. 7, 1896, showed signs of pneumonia, propped up in bed, turned over; improvement followed. January 20, extension had to be removed as the skin about ankle and foot gave way. Next five weeks no treatment, but kept in bed. In three weeks walked with crutches. May 12, walked with two sticks, one inch shortening, complete bony union. Was since able to follow his trade of peddling.

ALEXANDER HATTEN, Portsmouth, Pa.—*New York Medical Journal*, Nov. 13, 1897: On Sunday, March 8, 1896, was called to see Mrs. C., aged 73; much emaciated, being about 5 feet 3 inches in height and only weighing 95 pounds. She had fallen while entering a church door and complained of severe pain at the left hip joint and lost motion in the left thigh. She was placed on a stretcher and carried to her residence, where on examination I found an intracapsular fracture of the neck and left femur with no impaction. She was placed on her back in a fracture bed and her leg put in good position. Buck's extension was applied and two sand bags were used, one on inner and one on outer side of leg, the latter extending up to waist. She remained in this position for six weeks, at the end of which time Buck's extension was removed, as it was found the fracture had entirely united. In three weeks more she was able to walk with the assistance of crutches. She now walks well without assistance and only has about one-half inch shortening.

AUTHOR'S CASE 1.—Mrs. C., aged 62, on August 19, 1901, was thrown from her carriage, striking violently on her hip. Seen by the writer three days later, limb everted, 2½ inches shortening, very painful. Patient chloroformed, fracture reduced, plaster-of-paris cast applied. Two weeks later was transported six miles over country road and 125 miles on railroad train to her home. Plaster left on eight weeks, when she was allowed on crutches.

Present Condition.—June, 1902, nine months after accident, limb in good position. Can walk without crutches or cane but uses cane on street. At present time is visiting friends and enjoying herself.

AUTHOR'S CASE 2.—Mrs. S., aged 66, 1897, sustained fracture of hip, 2 inches shortening, chloroform administered, fracture reduced and limb encased in plaster-of-paris spica, in extension and abduction. Cast left on for 8 weeks, when she was allowed on crutches.

Present Condition.—Has done all her house work for three years; walks with slight limp. Patient absolutely refuses to have limb measured.

AUTHOR'S CASE 3.—Mrs. F., aged 76, on Oct. 18, 1900, fell off porch 2 feet, striking on hip; 2 inches shortening, limb everted, great pain. Under complete chloroform anesthesia, limb placed in best possible position, plaster-of-paris cast applied and left on for nine weeks, during which time patient was kept in bed, and then allowed up on crutches.

Present Condition.—Shortening 1¼ inches, limb straight, 45 degrees free and painless motion. Walks without cane or crutch, no pain in hip, goes up and down stairs unaided although 78 years old.

AUTHOR'S CASE 4.—Mrs. P., aged 59, in April, 1901, fell down steps 4 or 5 feet, striking on hip; seen by writer one week later: patient in bed suffering a great deal of pain which was intensified on slightest attempt at motion; 1 inch shortening. Temporary plaster-of-paris spica applied. Patient transferred 4 miles over country road, and 20 miles on railroad train to hospital. Next day, under complete anesthesia, plaster-of-paris spica was removed, limb carefully examined and previous diagnosis of impacted fracture confirmed. Permanent plaster-of-paris carefully applied, patient put to bed for nine weeks, spica removed, allowed to walk on crutches.

Present Condition.—June 3, 1902, union firm, position and motion of limb normal, 1 inch shortening; can bear entire weight of body on limb without pain, and walks well without cane or crutch. Has done all her housework for 3 months.

SUMMARY OF AUTHORITIES ON OPERATIVE TREATMENT.

KOENIG.—The operative treatment in these cases was first suggested by Langenback, and successfully carried out by Koenig. The latter operated in a case of recent fracture, making a small incision over the trochanter major, drilled a hole through it with a metal drill in the direction of the head of the bone, applied extension to the limb to the extent necessary to overcome the deformity, and then drove a long steel nail through the canal in the trochanter into the head of the bone and left it there. The limb was then immobilized and extended for six weeks. There is no record of the ultimate shortening, but good union and free motion of the joint was obtained.

CHEYNE.—In a case of recent fracture, Cheyne exposed the fragments through a longitudinal incision made over the anterior aspect of the joint, exposed the fracture, made extension and internal rotation of the limb, and with the fingers in the wound manipulated the fragments into place; then a small longitudinal incision was made over the outer side of the trochanter major, and two canals drilled through the fragments at a distance of half an inch apart. Ivory pegs were then driven through the holes made by the drill, and the limb immobilized. Good union and motion were obtained, but there is no record of measurements of the limb.

MEYER.—In a case of ununited fracture with three inches shortening, Meyer made the Langenback incision for excision of the hip joint (Bryant's Operative Surgery, Fig. 393), exposed the seat of fracture, scraped the ends of the fragments until they bled, reduced the deformity by extension of the limb and fastened them together by driving two nails through the trochanter major. A useful joint was obtained, with an inch and a half shortening of the limb.

PARKHILL.—This method is commended for fracture of the neck of the femur (Fig. 1550 in Bryant's Operative Surgery).

GILLETTE.—Three cases of ununited fracture of the neck of the femur are reported operated on in the following manner: A horseshoe incision with its convexity downward was made, beginning an inch below and an inch posterior to the anterior superior spine of the ilium, carrying it down two inches below the trochanter major and bringing it up the buttocks to about the center of the gluteus maximus muscle. The skin and the two layers of fascia were dissected up en masse. A chain saw was then passed between the posterior border of the tensor vaginæ femoris and the gluteus medius, hugging the neck of the femur and the base of the trochanter major; it was brought out through the posterior surface of the gluteus medius and the anterior surface of the gluteus maximus; the trochanter major and its muscular attachments were sawed off, turned back, thus exposing the capsule of the joint. Then, by making a longitudinal incision into the capsule the fracture

could be easily seen. The surfaces of the fractured ends were denuded and a bone peg driven through the neck of the femur, thus holding the fractured ends together. The capsule was

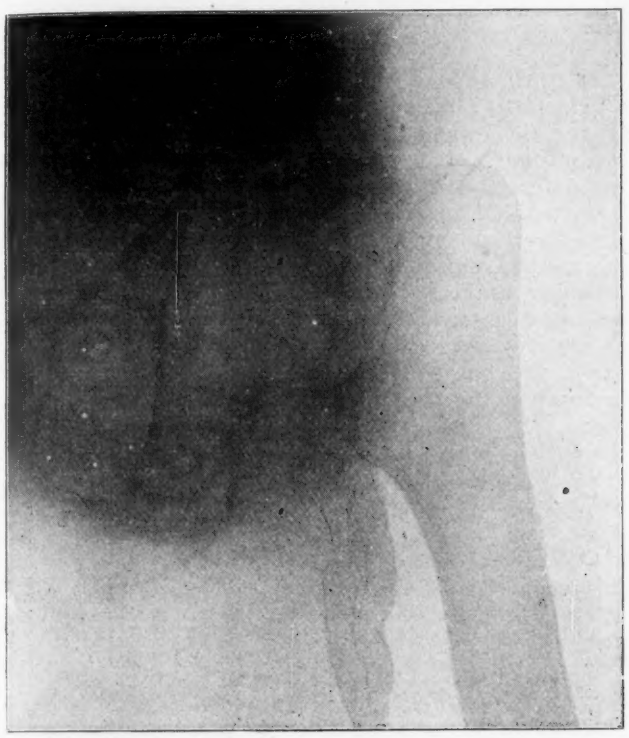

Fig. 1.—Showing fracture before operation and atheromatous femoral vessels.

stitched with catgut, the trochanter major restored and nailed in place with a small bone peg, the skin closed and the limb immobilized. There was union and good motion obtained in

Fig. 2.—Showing hip after operation.

all cases, with shortening of from an inch to an inch and a half.

CURTIS.—In a case of ununited fracture of neck of the femur of three months' standing, Curtis exposed the fracture through an anterior incision, passed a drill into the callus and between the fragments to cause irritation, applied extension to the limb and reduced the deformity, after which a drill was passed through the trochanter major from the outer side, transfixing the fragments; the handle of the drill was then removed and the drill itself left in situ. The anterior wound was closed and the limb immobilized. The extension was maintained for six weeks, at the end of which time the drill could be easily removed. Good union and a useful limb were obtained with three-quarters of an inch shortening.

LISTER.—*British Medical Journal*, Aug. 26, 1871: Sir J. Lister has recorded the case of an ununited extracapsular fracture of the femur in a man aged 45, where, eighteen months after the injury, he cut down on the fragments with antiseptic precautions and gouged them, the fracture being then finally put up. Recovery was complete, the man walking well.

AUTHOR'S CASE 5.—M. M., aged 60, miner by occupation, on Feb. 7, 1900, fell on ice, striking on hip, was carried home and put to bed for three days, afterwards allowed to sit in chair, where he spent 3 months; could not put weight on limb for 18 months, had constant pain in hip, walked with both hands on cane (bent almost double) on which he carried the greater part of his weight, dragging his right limb; one and one-half

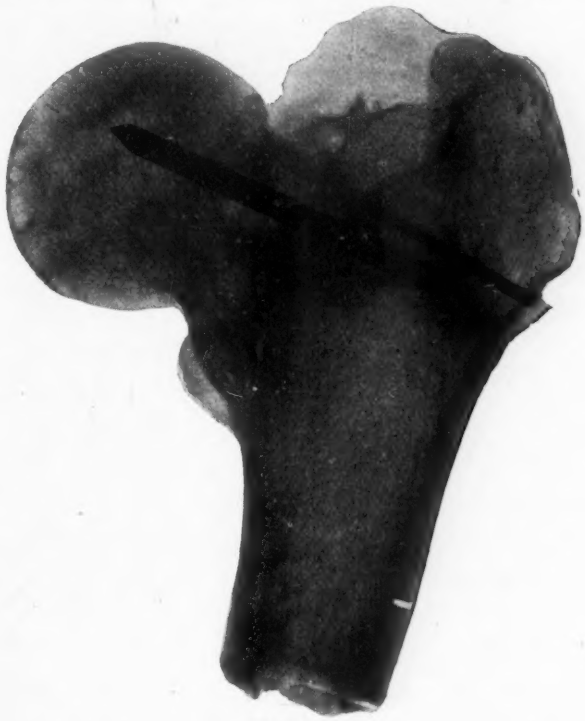

Figure 3.

inches shortening, marked eversion of limb, on manipulation distinct movement could be made out between head and trochanter (Fig. 1). On examination patient appeared much beyond 60 years, and showed signs of senile degeneration, viz., general muscular atrophy, arcus senilis, and atheromatous arteries (Fig. 2).

On Aug. 28, 1901, under complete chloroform anesthesia, a horseshoe-shaped incision was made around the great trochanter down through the muscles to the periosteum. In this case no bone flap was made, the capsular ligament was opened, and the free motility of the head ascertained. We deemed this step necessary because the skiagraph showed what we feared was ankylosis of head in the ascetabulum. I then drove two solid silver nails, 3/16 inch in diameter, and 2 and 3 inches long, respectively, through the great trochanter, neck and into head of bone. Only the long nail reached the head, as was afterward shown by *x*-ray (Fig. 2). It was not necessary to use drill before driving nails, capsular ligament was closed with catgut sutures, external wounds with silkworm gut without drainage, aseptic dressing applied and entire limb and body encased in plaster-of-paris spica. Patient did not suffer from operation, was allowed to turn over in bed, no elevation

of temperature. Wound was dressed through a fenestra in spica at end of third week, when stitches were removed, primary union complete. Was removed from hospital to home at end of six weeks, and spica taken off at end of nine weeks, when union appeared firm, 45 degrees of free motion in the hip. Three months after the operation he could bear over half the weight of body on the limb, could walk upright; 1 inch shortening.

Present Condition.—Nine months after operation the limb is straight, motion normal, shortening 1 inch, can bear entire weight of body on limb without pain, walks with cane but can walk very well without it. No pain except on direct pressure over seat of operation.

AUTHOR'S CASE 6.—This case was reported at the St. Paul meeting and published in THE JOURNAL of Dec. 21, 1901. Sustained fracture of hip by a fall of rock while working in mines. Was seen by me and operated on 3 months later; practically the same operation as in Case 5, except in this case a bone flap was made before driving nail and but one nail was used besides the small nail for bone flap. Plaster-of-paris dressing the same; wound healed by first intention. Patient walked in three months with one inch shortening. Improvement continued until at the time of his death he could walk without cane or crutch; had 90 degrees of free and painless motion. Death 18 months after operation from intercurrent disease. Specimen obtained. Bony union firm in good position (Fig. 3).

SUMMARY.

1. I believe that the teachings and writings of surgical authors have been rather discouraging to the general practitioner on this subject.
2. That in all cases of fractured femoral neck, firm bony union and useful limbs may be anticipated.
3. That age is not a counter indication to treatment nor to obtaining bony union.
4. That the patient is best treated by reducing the fracture and immobilizing it.
5. That this is best accomplished under anesthesia and by the use of the plaster-of-paris spica.
6. That the immobilization should be continued for a long time, and three months should elapse before allowing weight on the limb.
7. That Buck's extension with weight and pulley is not sufficient immobilization to obtain bony union.
8. That the use of apparatus in these cases is expensive, hard to obtain when needed, not so efficient in immobilization, and less convenient for the patient and nurse than plaster-of-paris spica.
9. That the operative treatment in old and neglected cases has succeeded beyond all expectations and deserves a place in surgery among the radical cures for troublesome conditions.
10. That the patients who usually suffer from the accident being old and enfeebled is a good reason why the physician should make their declining years as peaceful and pleasant as possible.

Intravenous Injection of Chloral in Treatment of Varicose Ulcers.—An article in the *Gazzetta Med. di Roma* for June states that Scalzi has treated 200 patients with varicose veins or ulcers by the intravenous injection of a Pravaz syringeful of equal parts chloral hydrate and distilled water. No inconveniences were noticed in any instance. He applies a constricting bandage above. The coagulum forms so rapidly that the constriction can be removed ten minutes after the injections. If the lesion is merely a varicose vein, the chloral mixture is injected at different points in the vein; if an ulcer, the injections are made in the most swollen portions of the vein, close to the edge of the ulcer. The beneficial effects are evident in a few days and the ulcer gradually heals. Enrico, the author of the article, lauds this as the simplest and most effective of all methods of treating varicose veins and ulcers.

THE TREATMENT OF TRANSVERSE FRACTURE OF THE PATELLA BY SUBCUTANEOUS PURSE-STRING SUTURES.*

JOHN B. ROBERTS, M.D.
PHILADELPHIA.

In April, 1896, I reported[1] a case of patellar fracture satisfactorily treated with a catgut ligature carried around the fragments, in the coronal plane, making a sort of purse-string suture. This method seemed to me preferable to Barker's method, in which the ligature is introduced in the sagittal plane and traverses the knee joint and prepatellar bursa. I do not know that the method was new, but it is certainly deserving of extended use. Further experience has increased my confidence in it and leads me to advocate its adoption. It requires no special apparatus, such as Malgaigne's hooks, does not invade the knee joint or the synovial sac in front of the patella, and demands no general anesthetic. It is practically free from septic risks, allows the patient to get out of bed soon, and results in such a close union of the fragments that, even if true bony union is not obtained, the function of the limb is perfect.

Clinical experience and laboratory investigation seem to justify me in suggesting some modifications of the original procedure, which will, I believe, add to its surgical value.

The only instrument used is a stout needle five or six inches long and a strong ligature of silk, soft wire, kangaroo tendon or chromicized catgut. About a week is permitted to elapse after the receipt of the injury, in order to give time for absorption of blood and synovial fluid. During this period I keep the patient in bed on his back, with the knee extended and the limb elevated in order to relax the rectus muscle, which, by reason of its origin above the hip joint, may tend to draw the upper fragment upwards. An ice bag is applied to the knee to hasten the reduction of inflammatory swelling. If the intra-articular effusion were very great, I would not hesitate to tap the joint with a small aseptic trocar. This is probably seldom necessary.

When the purse-string suture is to be applied, the skin is sterilized and the aseptic needle thrust transversely through skin, muscle and fascia, just below the lower fragment of the patella. It is carried deeply enough to insure pressure against the bone when the purse-string is drawn tight and tied; but it is not expected to penetrate the joint cavity. The aseptic suture is drawn through the tissues by means of the needle. The needle is then inserted at the puncture of exit and thrust upwards, through the tissues, alongside of the broken patella, until its point emerges at a point a very little higher up the thigh than the upper edge of the upper fragment. The suture is drawn through this needle track. During these manipulations the two fragments are held together by the surgeon or an assistant. The needle is then introduced at the second puncture of exit and carried through the muscles just above the upper margin of the upper fragment. Its transit carries the ligature across the thigh superficially to the synovial sac of the joint. The needle is then inserted at the fourth puncture and is thrust downwards alongside of the two fragments until it emerges at the first puncture. It is pulled through this open-

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee: Drs. H. O. Walker, A. J. Ochsner and DeForest Willard.

1. Annals of Surgery, vol. xxiv (1896), p. 229.

ing, and thus brings out the end of the suture; which by these maneuvers has been made to subcutaneously encircle the broken patella. The two ends of the thread now protrude from the same opening.

The final step is to pull upon the two ends steadily and vigorously, while an assistant holds the two fragments of the patella in close contact, and tie a firm knot. The knot slips within the cutaneous opening. If a thread of kangaroo tendon or catgut has been used, the ends are cut off short; and the ligature finally becomes absorbed. If silk or wire has been employed, the long ends are allowed to remain; and at the end of four or six weeks, the knot is divided by sharp-pointed scissors, or the wire is untwisted, and the suture pulled out of the tissues.

Surely no operation could be simpler than this. In fact, it scarcely deserves to be called an operation. During its performance, general anesthesia need not be employed. I have usually been satisfied with freezing the skin at the points of puncture. I am, however, inclined to think that there may be an advantage in thorough muscular relaxation, obtained by general anesthesia, before tightening and tying the ligature. The skiagraphs illustrating this paper have led me to this conclusion.

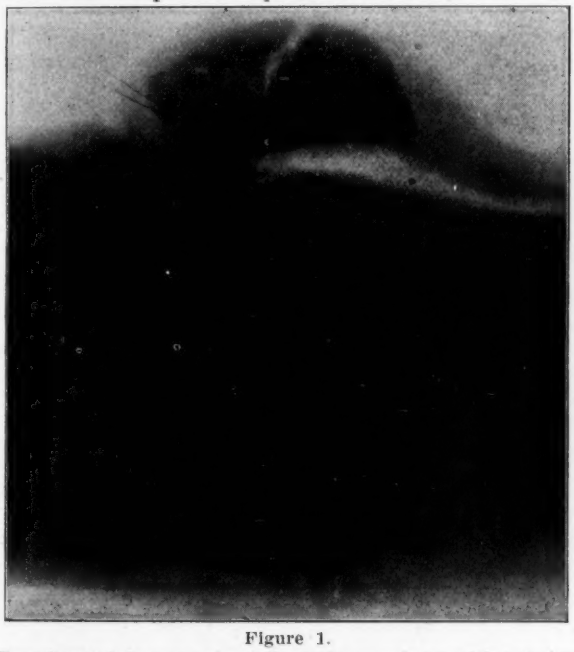

Figure 1.

Experimental fracture of patella made on cadaver with osteotome; surrounded by purse-string suture of wire.

Before introducing the needle, I press the two fragments together and rub them rather forcibly against each other. This is done to make sure that they can be brought into contact by the encircling suture and to endeavor to displace any ragged edges of periosteum or tendon that may have fallen between the broken surfaces. It has been asserted that the interposition of these fringes of fibrous tissue may be a cause of failure to obtain osseous union.

After the suture has been tied, the four punctures are dressed with layers of aseptic gauze, and a light encircling gypsum splint is applied from the middle of the thigh to the middle of the leg, to prevent sudden flexion of the knee. The patient is then put to bed with the limb slightly elevated to relax the rectus muscle.

The patient may get out of bed on crutches three or four days later, and go to his business, provided it does not require him to suddenly exert the muscles of the thigh. The splint will prevent flexion of the knee; but sudden jerking of the four-headed extensor of the leg might possibly displace the upper fragment.

The prevention of flexion should be maintained for seven or eight weeks; after which time, gradually increasing passive motion of the joint may be made until perfect mobility is obtained. For a time after discarding the splint, it is wise for the patient to carry a cane, lest a sudden slip or loss of balance should result in refracture from sudden undue muscular action.

It may be better to use a second purse-string suture, carried around the patella more superficially than the one already described, in order to purse up the tissues near the anterior surface of the fracture. This would, I think, have a tendency to prevent the tilting of the fragments, which is seen in recent untreated fractures and shows in my skiagraphs. In such an operation I should be inclined to tie the superficial or more central suture first. The greater separation, of the anterior, surfaces of the fragments is said to be due to the attachment of the extensor tendon and of the ligament of the patella to the anterior portion of the knee-pan. An encircling suture through the tissues at the anterior, or superficial, face of the bone would seem to be an efficient means of obviating this tendency of the fragments to gape apart.

Figure 2.

Experimental fracture made on cadaver with osteotome and then encircled by two purse-string sutures of wire.

I show skiagraphs of the two methods of operating, done on a cadaver, in which I produced fractures with an osteotome. The absence of muscular tension and synovial effusion makes the experiments inconclusive. They serve, however, to show in a crude way the methods described.

ILLUSTRATIVE CASES.

A woman was admitted to the Polyclinic Hospital on Jan. 31, 1896, with the ordinary transverse fracture of the patella. One week after the accident I drew the fragments together with an encircling purse-string suture of chromicized catgut, carried through the tissues in the coronal plane. The apposition was good as soon as the ligature was tied, though previously it had seemed impossible to bring the fragments

into perfect position by pressure of the fingers, although the patient was under ether.

Two days afterward the limb was encased in a gypsum splint from the upper part of the thigh to the foot. Before the gypsum had hardened, the assistant inadvertently let go of the foot and permitted the knee to be flexed a little, causing some pain. I permitted the patient to get out of bed and walk with crutches two days later, or eleven days after the receipt of injury. This early discontinuance of confinement apparently does no harm, and is a very great advantage in the method of treatment.

The plaster-of-paris splint was removed in four weeks, when the knee showed about a quarter of an inch separation between the fragments anteriorly. This was supposed to be due to the stretching of the catgut ligature at the time the assistant permitted sudden flexion to occur, while the gypsum splint was being applied. It is likely that there was at this moment a sudden involuntary contraction of the four-headed extensor muscle.

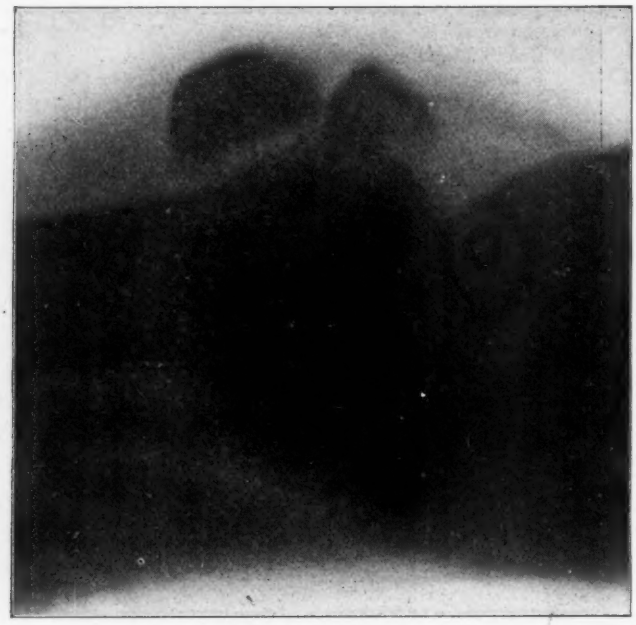

Figure 3.

Fracture of right patella treated at Methodist Hospital by purse-string silk suture. Taken about 15 months after accident. Use of leg PERFECT. Externally the bone feels as if bony union had occurred.

It may, it is true, have been due to the ambulatory method of after-treatment. My subsequent experience leads me to think that it was not due to either of these causes, but to the usual tilting of the fragments.

I have no notes to show how much longer the limb was kept extended and protected from flexion; but the hospital record states that she was discharged on February 20. I showed the case at the meeting of the section on surgery of the College of Physicians of Philadelphia on April 10, ten weeks after the receipt of injury, and the union was as close as mentioned above, though probably not bony.

A young man fell down three cellar steps while carrying a quarter of a barrel of beer, because a piece of projecting wood caught the edge of his trousers and threw him. He was admitted in November, 1901, to the Methodist Hospital, which he left after being under treatment nearly eight weeks, for a transverse fracture of the right patella. I treated him with a purse-string suture of silk which was removed before he left the hospital.

When examined after the lapse of fifteen months, the patella was perfectly movable and the union appeared to be bony. The man could flex the knee perfectly, but there was a grating sensation occasionally felt when I moved the joint. There was no stiffness and the leg was as strong as ever. The patient says that he can carry a half-barrel of beer upstairs and that his situation in a brewery compels him to do this sort of work constantly. I had him kneel upon the floor and found that he could rise without the least difficulty from the kneeling position. There is no difference, in power or in flexion and extension, between the two legs. The front of the right knee looks a little bit thickened so that the outlines of the patella do not show as distinctly as in the normal leg. The injured patella seems to be about one-eighth of an inch longer than the other patella. There is no pain or discomfort about the leg. The man says he notices no difference between them in usefulness or feeling. He went to work four weeks after leaving the hospital, but it was seven weeks after leaving the hospital before he could carry heavy weights like beer kegs.

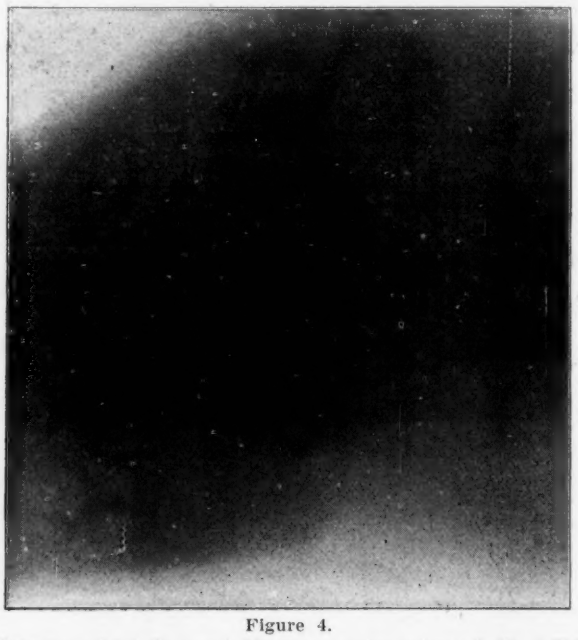

Figure 4.

Fracture of patella treated by purse-string suture of silk at Polyclinic. Taken before suture was removed. March, 1902. Left leg.

A skiagraph was taken fifteen months after treatment and showed that the union was fibrous and the fragments tilted apart at the anterior surface. This surprised me, for palpation of the knee gave the impression that the union was bony, and it was only by careful examination that the line of fracture could be made out. The fragments are not quite in contact even at the under surface of the bone; and there is evidently an osteophytic growth on the lower surface of the lower fragment. It is doubtless this roughened area that gives rise to grating during passive motion. The skiagraphic illustration shows well these imperfections in the reconstruction of the patella.

It is interesting to note that the functional integrity of the bone is complete though the anatomical contour is imperfect. This is pretty good evidence that the adoption of incision of the knee-joint, for the purpose of carefully suturing fascia and bone, is unnecessary. Such an operation is more risky to the patient than the purse-string suture and can give no better functional result than was obtained in this case.

The ideally perfect union of bone, periosteum and fascia is not worth the increased risk to the mobility of the joint and to the life of the patient.

A man, aged 40 years, was admitted to the Polyclinic Hospital on Feb. 9, 1902, with transverse fracture of the left patella. He had fallen while under the influence of liquor. Eight days later, after preparatory treatment by elevation of the leg and the application of an ice bag, I drew the fragments together with a silk purse-string suture. A plaster-of-paris splint was applied and the patient put to bed with the leg elevated to relax the rectus muscle. No inflammatory reaction followed and March 17 the silk suture was removed and the fragments found in good apposition. It was necessary to make a little incision to reach the knot of the suture, in order to cut the thread at that point and draw it out of the tissues. The man had been kept in bed all of this time with the joint immobilized. This was longer than necessary. On April 4 the patient was discharged with a light gypsum splint, to prevent sudden flexion of the joint. I have seen the patient a number of times since then, and there appears to be slight motion between the two fragments, as though the union were a short fibrous one. The skiagraph made while he was still in the hospital and before the suture was removed shows that this is really the case. There is the same tilting apart of the fragments at the anterior surface that I have mentioned as usually present.

DISCUSSION

ON PAPERS OF DRS. RUTH,* THOMSON AND ROBERTS.

DR. W. H. CARMALT, New Haven, Conn.—In the paper by Dr. Ruth I think the true principles of surgery have been carried out in that the traction is made in the direction of the axis of the bones that are broken. We are too apt to think that the femur simply goes from the trochanter to the knee and ignore the fact that the neck of the femur is at another angle. To apply the pulley to the outer side certainly appeals to my judgment and I shall try it. The question of immobilization that Dr. Thomson refers to is good so far as it goes, but it lacks in just that particular that Dr. Ruth gives us. I should like to ask Dr. Thomson about his photographs, as I see something that apparently looks like nails driven in the axis of the bone. I do not know whether that is a skiagraphic shadow or is really in the specimen. The question of fixing the bony fragments with nails is not new, and I think Dr. Senn wrote an article on this subject. As to Dr. Roberts' paper I have tried a similar plan and think it suits very nicely in certain cases. I should be the last one in the Section to say we should not strive for the very best bony union possible. You have all seen cases where there is wide separation of the fragments, with a very useful leg. I remember some years ago Dr. Bull reported some cases of fracture of the patella and one was a fireman and one a policeman who were both in active discharge of their duties. They climbed over chairs and tables and did everything that anybody would be likely to do in spite of a separation of some inches between the fragments. I do not propose to advocate any slack method of treatment, but the simple fact is that patients with wide separation occasionally have very useful legs. I do not know anything better than Dr. Roberts' suggestion, and I have tried it in one case. I believe Dr. Roberts makes a purse-string suture all around, and I have done it once in that way. I have seen it reported in two cases subcutaneously, and I like the results very well.

DR. A. H. LEVINGS, Milwaukee—Fractures of the patella are of frequent occurrence, and may lead to a good deal of disability if the fragments are not brought in close apposition. The purse-string suture of Roberts is at this time not new, as it has figured in many of the text-books, and I myself have been pleased to employ it. There are, however, certain seemingly serious objections to its general use. In these fractures the upper fragment is often tilted backward into the joint cavity, rendering accurate apposition by the purse-string suture difficult or impossible. The fractured portion of the upper fragment is often covered by the torn capsule, which also hangs into the joint, again rendering close apposition of the broken fragments by this suture difficult.

Everyone who has opened these joints has found them filled and over-distended with blood, which is either more or less coagulated and at times in a state of semi-organization. These blood clots are not unfrequently the cause of adhesions, floating cartilages, and loose bodies. I have preferred to treat these fractures by opening the joint, preferably at the end of the first week, when the lymphatic and connective tissue spaces will have become closed by adhesive inflammation, thus rendering infection much less liable. After the joint is opened by transverse incision and the fluid and clotted blood thoroughly washed out with a carbolized solution the fragments are evenly and nicely coapted by wire suture, and the torn capsule by strong catgut. At this stage there is no hemorrhage and drainage is unnecessary. I have never seen infection follow the operation, and have had occasion only to congratulate myself and the patient on the result.

DR. J. P. LORD, Omaha—I have devoted considerable attention to the treatment of fractures of the small part of the neck of the femur. Twenty-one years ago, as a medical student, I was taught by my preceptor the same principles as those mentioned by Dr. Ruth. He did not claim originality for it, and I do not know where he got it, but it impressed me, and always has, as a matter of great importance in reducing this fracture. Through all these years there has been an evolution going on in my practice in establishing for myself a method which would at once reduce the deformity and maintain reduction as well as render less likely non-union or deformity. Union takes place in the aged in other fractures with almost equal facility as in the young, and there is no longer any doubt that union will take place in the small part of the neck of the femur if immobilization is maintained. The great difficulties we have in feeble subjects is to be able to get proper appliances to maintain apposition for this result to take place. There has been a tendency all these years to simply get along with tentative treatment of these cases. I have the greatest admiration for an operator who will cut down and screw or nail the fragments together, but these cases usually fall into the hands of those who would be loath to do this operation. They are not sufficiently trained to justify them in doing so formidable an operation. We should establish such a line of treatment as will best secure the combined results. A method which has served me well is to apply Buck's extension with a wide plaster to the perineum and pad and bandage the leg to that point. Put in your foot stirrup with cord and make a loop in it so that an assistant may put it around his body, and make traction. Put a strap around the thigh and from this exert traction upward and outward by means of rope and pulley, to overcome the tendency to eversion caused by the action of the strong gluteal muscles which rotate the limbs outward and can only be properly overcome by the means described. I think that a little inversion is desirable to insure a normal result. This system keeps up constant extension and the fragments are in apposition. This lateral extension is used until the fragments are in the position they should be. And to maintain them I put a piece of board in the plaster about four inches wide and 20 inches long, 1/3 of an inch thick; this rests directly behind the trochanter, when applied to the thigh portion of plaster. This extends off from the body about six inches. The body is thoroughly padded previously, and when this board is forced in against the body its spring maintains a continuous pressure. The plaster dressing is made secure. The patient is put to bed, requisite extension is applied, and this is maintained for eight weeks. My results are from 1/4 to 1/3 of an inch shortening with absolute bony union, and no deformity nor eversion. I have only had two cases, but there is no question about the union nor the results. If this

* The paper of Dr. Ruth appeared in the issue of Nov. 29, 1902, page 1380.

treatment is carried out you should secure good results. I have perfect confidence in it.

DR. CARL BECK, New York City—As to Dr. Roberts' paper, one point has been overlooked, namely, that the whole question of operation hinges on the degree of diastasis. In transverse fractures of the patella showing little or no diastasis, a plaster-of-paris dressing is applied best. While the displaced fragment is tightly grasped and pushed downward by the fingers of an assistant, the dressing is applied. The limb is best put in the hyperextended position, while the patient sits in bed half upright. The turns of the bandage are conducted around the pressing fingers, so that at last a wall is formed around the digital impressions, which includes the reduced fragments after the plaster sets, and becomes so firm that a return of the fragments proves to be impossible. If there is a fair amount of diastasis, the operation so well described by Dr. Roberts is advisable. But if there is considerable diastasis, wiring of the fragments can not too strongly be advocated, since the performance of this simple operation is void of danger in the hands of a surgeon who is master of the principles of asepsis. Whatever has been said of the dangers of this operation applies more to the surgical novice, who does not properly understand asepsis, than to aseptic surgery itself. When it is considered that without such operation union becomes only fibrous, and that in the course of time the originally fibrous bands become stretched by the action of the quadriceps muscle, so that active extension of the knee-joint became impossible—in other words, that the patient becomes a cripple for life—we should not refrain from exposing the patient to the trouble of this operation, which guarantees an absolute cure.

Complicated maneuvers, like boring holes into the fragments, can not be too strongly condemned, since simply conducting a large needle armed with silver wire around the fragments secures their perfect apposition. The needle must be introduced at the upper end into the quadriceps tendon above the patellar margin and through the ligamentum patellæ on the lower margin of the lower fragment. The silver wire is twisted above the middle of the fracture line, its ends protruding at last through the suture line of the integument. A semilunar incision should be made from one epicondyle to the other, just above the insertion of the ligamentum patellæ. Thus a convex flap is formed, which is dissected backward. The fractured area is then fully exposed, and the intra-articular blood extravasation can be freely reached. An ironclad principle, especially referring to this operation, is "Hands off the joint!" For the consolation of such surgeons as are afraid of the aseptic state of their own fingers it may be said that there is no need for coming into contact with any portion of the field of operation with their fingers or hands. The needle can be carried through with the aid of a needle-holder and the twisting, which in itself tends to bring the fragments together, can be done with a forceps. The blood-clots can be removed by powerful irrigation with a hot sterile salt solution.

After the suturing (preferably done with boiled formalin catgut) is completed, either an ordinary wound dressing, supported by a large moss splint, or a fenestrated plaster-of-paris dressing (the fenestra being created by holding a sterilized glass over the wound) is applied. The wire suture is carefully removed after three weeks. Then the knee is well immobilized for two or three weeks longer, and the patient is allowed to walk about in this dressing. The wire must be very strong, for there is risk of its breaking if the patient be restless.

DR. T. J. MAXWELL, Keokuk, Iowa—I am responsible for the technic described in Dr. Ruth's paper. In the winter of 1870 I was called to see a lady, aged 52, who had fallen, striking on the right trochanter. She was rendered helpless, unable to arise or use that leg. She was carried into the house and placed on a pallet on the floor. Examination showed shortening of right leg two inches, eversion of foot and leg, the upper end of femur turned on the axis of shaft, not describing an arc, as is normal. There was great tenderness on movement, crepitation developed on extension with rotation. The patient was thin in flesh and the fingers grasping the trochanters could easily palpate their entire circumferences to the junction of the neck, thereby making the diagnosis of fracture of the neck complete.

I dressed the fracture by the application of a long side splint (Day's). It made extension sufficient to bring the leg to the right length determined by measurement. This dressing was retained for one week. Though the leg was the right length, there was flattening of the hip and constant pain. I knew the bones were not in coaptation. Nature had no chance to repair the injury. At the end of the week I determined to change my dressings, so that the fragments could be placed in apposition. The body of the patient was made the counter-extending force, by elevating the right side of the bed twelve inches at the foot, four inches at the head of bed on right side. The left side of bed, at the foot, was raised eight inches. Therefore the body gravitated toward the head and left side of bed. Extension (longitudinal) was made by the application of adhesive straps to either side of thigh and leg from body to ankle. A cord was attached to these straps. This cord was carried over the pulley at the foot of the bed, and a weight of about fifteen pounds, or enough to keep the leg the proper length applied. The hip being flat, I next applied a band close to the body, around the thigh. To this band was attached another cord, which was carried over a pulley at the side of the bed (this pulley was so placed that it was about eight inches higher than the body, and opposite the anterior superior spine of the ilium). Sufficient weight was attached to this cord to draw the trochanter upward, forward (as to body erect) and outward, until it was exactly as prominent as the uninjured one. This form of application relieved all pain and comfort was secured, as it did in all the subsequent cases treated in like manner. At the end of six weeks the union was complete and perfect, as far as one could judge from a careful examination and movements of joint. There was no shortening and the leg was functionally perfect.

Dr. Roberts, in his paper, refers to his preceptor having gained some knowledge of the lateral extension, from some source, unknown to him (Dr. Roberts). In answer to that I may be allowed to suggest that he likely got it from a paper I read on the subject, reporting my first case, at Galesburg, Ill., before the Military Tract Society, during the summer of 1870. Or he might have heard the paper read before the Illinois Medical Society during the spring of 1881.

The numerous cases reported in Dr. Ruth's paper are accounted for by the fact that I have taught that method in the Keokuk Medical College for the last seventeen years. The students graduating from that institution practice the method and report their cases to Dr. Ruth or myself. The method is, 1, rational; 2, painless; 3, simple and easily applied. 4. It is inexpensive and always at hand. 5. Forty and more successful cases at least commend it for trial.

DR. H. M. SHERMAN, San Francisco—There is, I think, one point in connection with femoral neck fractures that needs always to be mentioned, and that point is the necessity for gentleness in the examination. This is for the conservation of any slight, or even fairly firm, impaction. The diagnosis should be made rather by measurements than by manipulation, and with this method I have obtained a satisfactory amount of success. As to the demonstration of Dr. Ruth, it is comparable to that marvelous demonstration made by Dr. Allis in Philadelphia, of dislocation of the hip, and I can not pay it a much higher compliment. I want to ask Dr. Roberts what he does with the infolding capsule in cases of fracture of the patella. In the few cases in which I have done it I have been pleased with Stimson's method of suture of fibrous tissues to coapt the fragments.

DR. JOHN B. ROBERTS, Philadelphia—In answer to Dr. Sherman I may say that it is my practice before I put the purse-string suture around to rub the surfaces of the broken bone together. I am not sure that I get bony union; indeed, I think that probably very often I do not. I have skiagraphs that show I do not at times. My impression is that it does not make any difference whether the union is bony or fibrous if it be close and strong. It is not necessary to subject your patient to the danger of an arthrotomy when you can get a good union

by some such simple method as this. It seems to me that it is better for most of us to treat transverse fractures in this way. As to the fractures of the neck of the femur, I may say that I have been very much interested in the subject. All the illustrations presented seem to be fractures of the base of the neck of the femur; which are the fractures of that part which very frequently unite if they were given the chance. None of the specimens shows union of fracture through the small part of the neck. I have great respect for Dr. Scudder, but I think his book is very old fashioned. It does not seem to me to be up to date in the treatment of fractures. Therefore, I do not altogether agree with the speaker, who lays great stress on its statements as to these factures. Dr. Maxwell's fracture seems to be a fracture at the base of the neck.

DR. R. H. GIBBONS, Scranton—Dr. Thomson has not referred to the operation of Dr. Davis of Philadelphia. I do not think Dr. Thomson does rightly to adduct the limb. The apparatus should be applied as has been mentioned by Dr. Ruth, and Buck's extension or some other form of extension should be employed. I think two lines of traction laterally and longitudinally as recommended by Dr. Maxwell should be applied. Dr. Frank H. Hamilton first suggested the use of plaster in these cases, fracture of the femur at the neck or elsewhere, and Dr. Sayre later recommended it. Lateral extension and the application of plaster were recommended, too, by Dr. A. M. Phelps. Dr. Davis recommends the anterior incision, instead of Gillette's, as used by Dr. Thomson, which is similar to Mr. Barker's of England and that of the late Dr. King of Pittsburg, Pa., in exsection of the head of the bone for diseased condition thereof. Davis says about his method of operation, that after exposure of the neck through the anterior incision, through which the capsule is not only opened, but partially cut away by scissors, through which opening a finger is passed in order that the line of osseous separation through the neck is felt, and by means of which feeling he is enabled to direct the movements of the link by his assistant to obtain reduction of the fracture and apposition of the line thereof, then through an opening over the trochanter a silver nail or screw is to be passed in line crossing the line of separation, the nail passing through the reduced fragments from the trochanter into the neck, and this without turning up the trochanter by Gillette's method, which is a weak point to his plan, otherwise quite a perfect and original operation.

DR. W. T. ECKLEY, Chicago—I wish to call attention to an anatomic principle in the Maxwell-Ruth method that has a precedent in the physical law of projectiles: projectiles follow the line of greatest traction, the point of least resistance or the resultant of the two. In this method of treatment the resultant of lateral and longitudinal traction falls in the long axis of the neck of the femur because the external rotator muscles are physiologically immobilized. A treatment that secures physiologic repose by immobilization of those anatomic factors which, under less successful methods, defeat the objects of the procedure, is certainly "anatomic treatment," and Drs. Maxwell and Ruth are to be congratulated on harmonizing a principle of philosophy as old as medicine itself with modern treatment of fractures of the neck of the femur.

DR. RUTH, in closing—There is a great deal that might be said if time permitted. Mention has been made of impacted fractures. I had such a case in a person 74 years of age. It began to loosen in four days. The shortening was then manifest, which did not appear at first. There was a final shortening of a quarter of an inch. Lateral traction is indispensable, but the apparatus is not difficult to apply. It is comfortable to the patient, and can be raised to the sitting posture. After the first two days in nearly all of these cases they will flex the sound leg and raise the hips themselves. The bedpan is readily passed under them. Objection has been made that none of these fractures were through the narrow part of the neck, but I here present a specimen of such a case fractured at 72 years of age, used for twenty years thereafter. The leg has given the patient good service for twenty years and the line of fracture could scarcely be distinguished on the outer side. It has been hinted that this was an impacted fracture, but there was two inches of shortening, as testified by Dr. Maxwell. The man had slight eversion of the foot the rest of his life, which also showed that a fracture had taken place. I have purposely picked out the line of union in specimen two, which was treated for only four weeks, to show it more plainly in cut, and the union was very strong for the time. Dr. Jenkins, who had charge of the case for a time, is present, and can vouch for the accuracy of my observation. You can tell from the specimen what had happened, but no one could determine that there had been a fracture had the patient lived for a year. I presented a specimen from a case in a patient 81 years old, and the result enabled the man to work without inconvenience for six months, when he finally died of sunstroke. As to the plaster cast it will do in a great many cases, but every one of you know that it is only about 48 hours after placing a cast that the tissue begins to diminish in size, and your cast is loose. You can not, therefore, maintain perfect extension with a plaster cast nor can you influence the rotators and absolutely prevent eversion and posterior displacement. I feel like complimenting Dr. Thomson on his results. The only thing that makes me feel badly is that the gentleman did not use the anatomic method. If we have the next meeting in the neighborhood of Iowa we will show quite an array of cases that will walk without a limp or halt.

DR. THOMSON, closing—I am afraid I have been rather misunderstood. I am sorry Dr. Carmalt did not understand that the specimen on the board was a case repaired during life. There was no diagnosis made on this man at the end of three months after the accident, and until that time he was bedridden. The operation is described in my paper, but I did not have time to read it. As to the material I have never used anything but solid silver nails. They do not corrode, and I think they are by far the most satisfactory. As to the patient who walked around the hall—my second operative case—and limped a little, this man lay for 18 months, or sat in a chair with an ununited fracture of the neck of the femur that had not been diagnosed. It is nearly nine months since his operation. I believe he will walk as perfectly as any man can do, in time. As to plaster of paris versus apparatus I believe that the surgeon who has to wait in the course of his treatment for a skilled mechanic to fix up an apparatus is being handicapped, and I think we should be able to do this work ourselves. Dr. Gibbons has said I was expert in the use of plaster of paris, but there is not a man in this room who could not make as good a plaster cast as the one presented here in fifteen minutes, for 25c. As to its holding on and getting loose I will guarantee that if it is properly applied it will stay there indefinitely. As to reduction of the fracture I did not have time to read this, but it is described in my paper. The same principle as Dr. Ruth teaches about reduction is taught in the reduction under anesthesia. We reduce our fractures on the same principle as Dr. Ruth teaches, and then put it up permanently and it unites.

Schweninger's New Post.—Our German exchanges are continually commenting on Schweninger's career. He was recently appointed professor of the history of medicine, which has called forth a formal protest from the National Society for the Study of Medical History. He has since then had a polyclinic for internal diseases organized for him at the Charité. There are already two connected with the institution and another in the vicinity, so the necessity for a fourth official polyclinic is not apparent. He is still at the head of a large public hospital, and besides his duties as professor of the history of medicine and chief of the new polyclinic, is docent for general pathology and therapeutics. He is not a trained physician, but was Bismarck's medical adviser, as has been previously mentioned in THE JOURNAL, and was for a long time professor of cutaneous diseases. In a public lecture a year or so ago he made the statement that he would leave a certain question to students of the history of medicine, for which he confessed he had "neither talent nor training." This quotation has been going the rounds since his appointment to the chair of history.

UNCINARIASIS OR ANKYLOSTOMIASIS

WITH THE REPORT OF A CASE.

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VARIETIES OF UNCINARIA.

The uncinaria or hook-worm belongs to the family *Strongylidæ*, subfamily *Strongylinæ*, genus *Uncinaria*. As the name indicates, the parasite is characterized by a dorsal curvature of the anterior end of the body resembling a hook. The mouth is armed with teeth which have great penetrating power. The worms vary from one-half inch to an inch in length and are peculiar in that they live by sucking blood from the host.

The parasite is not confined to man, but exists in many animals. *Uncinaria canina*, according to Stiles,[1] is common in Washington, D. C., and has caused among pups in some communities the death of over 25 per cent. It also occurs in cats. *Uncinaria stenocephala* is found in dogs, foxes and other animals. *Uncinaria trigonocephala* occurs among the sheep in Texas and has killed 25 to 50 per cent. of certain flocks. *Uncinaria radiata* was described by Stiles in the cattle of Texas. *Uncinaria Lucasi* produces a mortality of 17 per cent. in the seal pups of Alaska.

DESCRIPTION OF THE SPECIES INFECTING MAN.

The two species of hook-worm which infect man are *Uncinaria duodenalis* (Dubini), or the old-world hook-worm, and the *Uncinaria americana*, recently identified by Stiles as a new-world species. A fact of great importance to the physician is that the species found in animals has not been observed in man, and the human species is not known to infect lower animals.

As the *Uncinaria americana* probably conforms in its life history to the *Uncinaria duodenalis*, the same description will apply to both forms. In the fresh feces are seen the eggs in various stages of segmentation. No larvæ are present until the ova have been exposed some time to the air under proper conditions of moisture and heat. It is the lack of air which prevents the development of larvæ within the intestine. With favorable culture surroundings outside of the body the larvæ emerge from the ova in 24 to 36 hours. The youngest rhabditiform embryos are from .2 to .3 mm. long and have a spindle-shaped esophagus ending in a rounded stomach, that contains tooth-like structures. The embryo takes up nourishment, and after casting the skin several times and undergoing certain anatomic changes, becomes full grown within eight days. It is then from .6 to .8 mm. in length and about .024 mm. in breadth.

This mature larva is exceedingly active and has a much greater tenacity of life than the younger forms. If the temperature is not below 20 C., and if the culture medium is moist, it will remain alive and active for weeks or months, but no further development occurs outside the body. It is with the larvæ, not with the ova, that man becomes infected. After being swallowed by the host, the larva seizes on the intestinal mucosa, sucks blood for nourishment and begins a new period of growth. Within two weeks the parasite again casts its skin, the sexual organs become differentiated and developed, and the anterior extremity acquires a buccal capsule with teeth. Five weeks after infection the worms are ten to twenty times the length of the full-grown larvæ.[2] The largest larvæ are scarcely visible to the naked eye, while the adult worm, 6 to 14 mm. (¼ to ¾ in.) in length, is easily seen. The presence of mature worms within the intestine is manifested by the appearance of eggs in the stools.

The shortest possible time necessary to the completion of the cycle of development from the eggs through the larval state outside the body, through the sexual ripening within the body, to the production of eggs again, is from 5 to 8 weeks. But this period is usually much longer because of the indefinite duration of the parasite in the larval stage.

NARRATION OF CASE.

The following case in the Cook County Hospital was in the service of Dr. James B. Herrick, through whose interest and kindness I am enabled to present this report:

Previous History.—G. L., 52 years of age, was a carpenter by occupation and a native of the United States. There was nothing in the family history of any significance. He enjoyed excellent health until the year 1879, when he went to Panama to work at his trade. While there he suffered from repeated attacks of malaria of both quotidian and tertian types.

Two years ago the patient was first taken ill with sudden gastro-enteric symptoms. At that time he was employed on the Chagres River, where he handled lumber and logs that were often covered with mud. He recalls that he frequently sat down to luncheon without previously having washed his hands. The earliest complaints were of an aching pain in the upper belly, loss of appetite and weakness. There was no nausea nor vomiting. The bowels were irregular, at one time loose, at another constipated. Later he became short of breath and dizzy from any unusual exertion and had palpitation of the heart.

In January, 1901, he sailed from Panama to New Orleans, where he was in a hospital under treatment for 15 months. There the anemia was so pronounced and so intractable to iron and arsenic that the diagnosis of pernicious anemia was made.

April, 1902, he went to Iowa, but the anemia progressed steadily until he was too weak to move about.

September 9 he was admitted to the Cook County Hospital, complaining chiefly of pains in the belly, weakness, dyspnea and palpitation. After sitting or standing the feet would swell. Frequently he had spells of dizziness and faintness. Patient says that he would occasionally develop a moderate fever and at such a time the epigastric pain was worse. The appetite was poor. The bowels required a laxative. There was never any hemorrhage from the nose, intestine or skin. Vision was good. A gradual moderate loss of flesh had taken place.

Status presens: Man of medium build; skin of a lemon-yellow color. Fatty layer fairly well preserved. Sclerotics bluish and muddy. Lips and mucous membranes almost bloodless. Palpable arteries moderately thickened. Pulse of large volume, soft and compressible, low tension, with a decided water-hammer character. Lungs negative.

Heart dulness extended to the left nipple line, to the upper border of the third rib above, and to the right edge of the sternum. The impulse was forcible and diffuse. Over the apex was a systolic blow transmitted to the anterior axillary line. A louder bruit of a different pitch was audible over the mitral area and the base. The pulmonic second sound was louder than the aortic closure.

The spleen was not palpable though its area of dulness was enlarged. The liver was not felt. The epigastric and umbilical regions were tender to pressure. Knee-jerks present, but not prompt.

Temperature 98.6, pulse 90, respiration 20. Urine 1.015—no albumin—no sugar and no casts.

September 11, blood examination showed hemoglobin 18 per cent., reds 2,576,000, whites 6,600. No stained preparations were made.

September 15, gastric contents were expressed one hour after a test meal of tea and toast. No free HCl present, no lactic acid.

September 23, blood examination, hemog. 17 per cent; reds, 2,280,000; whites, 6,000.

October 20, blood examination, hemog. 12.5 per cent.; reds, 843,000; hematocrit, 980,000; whites, 4,500; color index, .80; volume index, 1.17. The differential count showed: small mononuclear, 10 per cent.; large mononuclear, 11 per cent.; polymorph. neutrophile, 66 per cent.; polymorph. eosinophiles, 13 per cent., no rouleaux formation; no nucleated red cells; poikilocytosis marked; polychromatophilia marked.

The presence of pronounced eosinophilia in a case of grave anemia made us strongly suspect the existence of an intestinal parasite so that the stools were examined frequently. The earlier specimens of feces were watery from the rectal injections employed and were therefore not easily studied. In a formed movement, however, the ova were found in large numbers. These eggs corresponded accurately in dimensions to those of *Uncinaria duodenalis*, measuring about 56 microns in length and 34 microns in width.

Subsequently the eggs of *Tricocephalus dispar* were found in small number by Dr. J. L. Miller. Charcot-Leyden crystals were present in some preparations, absent in others. Cover-glass smears of feces hardened in alcohol and ether were stained with hematoxylon and eosin and eosinophilic granulations demonstrated. These granulations, like the Charcot crystals, were never numerous as is so often the case in ankylostomiasis.

The eggs were successfully cultivated and the larvæ brought to mature development. These experiments will be described later.

November 6, examination of the blood gave:

Hemoglobin 11 per cent.; reds, 748,000; hematocrit, 915,000; whites, 5,600; color index, 88 per cent.; volume index, 122 per cent. Differential count: small mononuclear, 15.8 per cent.; large mononuclear, 6.8 per cent.; polymorph. neutrophile, 70.2 per cent.; eosinophile, 7.6 per cent.; eosinophilic myelocytes, .2 per cent.; mast cells, .4 per cent. Poikilocytosis and polychromatophilia marked. Coagulation time, 5 minutes.

Previous to this examination the patient had taken thymol in small doses and it is not unlikely that many parasites were swept away and lost in the stools. The diminished eosinophilia and the smaller number of eggs found in the stools thereafter lend support to this assumption.

History in Hospital.—Treatment on the whole was unsatisfactory because of the profound weakness of the patient and the irritable condition of the stomach. A persistent nausea set in that interfered with stomach feeding and made the administration of thymol ineffective and even hazardous. Nutrient and salt enemata were resorted to, but the vomiting persisted until the patient succumbed on November 13.

During his stay in the hospital the most conspicuous symptom was epigastric pain of a dull nature at first, subsequently colicky. In the last two weeks this pain became continuous and was accompanied by great tenderness over the epigastric and right hypochondriac regions. The liver mass extended at this time about 2 inches below the costal arch and the tenderness on pressure was as great as that seen in hepatic abscess.

The bowels, as a rule, were constipated and required rectal enemata. The temperature was usually normal and ranged between 98.5 and 99.5 F. A tendency to hemorrhage was nowhere to be seen except from the intestinal tract. The feces gave the Prussian blue reaction for iron.

The examination of the eye grounds was twice carried out under difficulties. No retinal hemorrhage was apparent.

The blood findings throughout were of a most suggestive nature. An anemia at first of the secondary type, progressing until it corresponded in most respects to a primary pernicious anemia. The individual corpuscles grew larger and held an ever increasing amount of hemoglobin, the color index rising from 38 to 88 per cent. and the volume index reaching 122 per cent. The poikilocytosis was sufficiently outspoken, as well as the polychromatophilia, for a primary anemia. The scarcity of nucleated red corpuscles and the entire absence of megaloblasts is unusual in the primary pernicious form, yet some such cases have been reported. What convinced us that the anemia was not of the usual primary type was the eosinophilia of 13 per cent., for in the primary disease the eosinophiles are rarely increased. On the other hand, the uncinariæ and most of the other intestinal parasites are characterized by an increase in the eosinophilic cells.

Autopsy.—The postmortem examination was made November 13 by Dr. Harris, resident pathologist of the hospital. His report is as follows:

Body is that of a fairly well-developed and fairly well-nourished man 162 cm. tall. Postmortem rigidity and lividity present. There is a scar ½ cm. long on left arm, some edema of lower extremities. Paniculus adiposus well preserved and of a light yellow color.

Abdominal Cavity.—Diaphragm reaches to the fifth rib on the right side and to the sixth on the left. Some free straw-colored fluid in peritoneal cavity. Omentum extends down to the pelvis over the intestines and contains a considerable quantity of fat.

Pleural Cavities.—Some firm fibrous adhesions at right apex. About 1,000 c.c. clear straw-colored fluid in right pleural cavity, about 250 c.c. in left. Lungs do not meet in median line.

Pericardial Cavity.—About 500 c.c. of straw-colored fluid in the pericardial cavity. This fluid contains a few fibrinous flocculi. The pericardium is thin and surface is smooth.

Tongue, pharynx, larynx, not examined. Thymus absent. Esophagus and trachea negative.

Lungs.—Left lung smooth externally, marginal emphysema, crepitates throughout, floats in water, cut surface smooth, pale and drips fluid. On the diaphragmatic surface is a caseated nodule 8 mm. in diameter. Right lung—with the exception of the caseous nodule corresponds to the description of the left. Both lungs are quite free of pigment and weigh 2,870 gms. Peribronchial lymph glands are negative except for anthracosis.

Heart.—Cavities are quite empty, left ventricle contracted, aortic and pulmonary semilunar valves are competent, read by water test. Some fibrous thickening at the base of the aortic valves. One of the valves has a small fenestration 3 mm. long. Pulmonary valves show no changes. The mitral orifice admits three fingers and the valve shows a small amount of fibrous thickening, especially near the free borders. The tricuspid orifice admits five fingers; the valves show no changes. The left ventricle has an aberrant corda tendina extending from septum to left wall. Ventricular wall measures 16 mm.; right ventricular wall measures 5 mm. Heart muscle is firm and very yellow, but not mottled. Heart weight, 300 gms. There is a slight increase of the subepicardial fat. There are a few atheromatous patches in the ascending aorta.

Spleen.—About ½ larger than normal, capsule is smooth, parenchyma is quite firm; Malpighian bodies prominent; there is an evident increase of connective tissue. The organ weighs 225 gms.

Kidneys.—Right weighs 175 gms. Section pale, cortical markings not well seen, relation between cortex and medulla is normal, capsule strips readily, pelvis is normal. Left kidney weighs 135 gms. Answers to the description of its fellow.

Ureters, bladder, testicles and adrenals present no abnormal appearances.

Liver.—Extends 4 cm. below costal arch, capsule smooth and glistening—presents yellowish mottled appearance. Cut surface mottled yellow and red, lobules well seen. Liver cuts with decreased resistance. Weighs 1,600 gms. Bile ducts patent, bile dark brown, no concretions. Pancreas shows no changes.

Stomach.—Of normal size, externally is normal, mucosa is covered with much grayish yellow mucus, no parasites.

Small Intestines.—External appearance normal. Intestines contain a large amount of very tenacious mucus. In the duodenum was found one hook-worm. One hundred and fifty were found in the jejunum and upper part of ileum, being most numerous in the upper and middle jejunum. None found in last 18 inches of ileum. They were very adherent, and were in the proportion of about four females to one male. At point of attachment of some of the parasites was found a small ecchymotic spot and scattered along the rest of the mucosa a few other ecchymotic spots were seen—possibly points of previous

attachment. The mucus in places was blood-stained. Mesenteric glands were enlarged and of a pinkish color. Appendix lies in false pelvis to the outside of the psoas muscle and behind cecum—bound down by fibrous adhesions and curled at its tip.

Spinal Cord.—Shows no microscopic changes.

Bone Marrow.—Removed from femur. Marrow is yellow and very fatty. At two points it had a reddish color, but was even here practically all fat.

ANATOMIC DIAGNOSIS.

1. *Uncinaria duodenalis* of small intestine. 2. Ecchymosis of intestinal mucosa and hemorrhage into intestinal lumen. 3. General anemia and edema of dependent portions of body. 4. Bilateral hydrothorax. 5. Hydropericardium. 6. Edema of lungs and caseous tuberculosis of lower left lobe. 7. Slight atheroma of aorta. 8. Fatty degeneration of heart and liver. 9. Aberrant chorda tendina. 10. Passive congestion and fatty degeneration of liver. 11. Chronic interstitial splenitis.

HISTORICAL.

So much has been written of late years concerning the history of this disease in the old world that I will make mention only of the more important data.

The affection was first satisfactorily described by Piso (1648) in Brazil. During the eighteenth century it was observed in Guadeloupe by Labat (1748), in St. Domingo by Chevalier (1752), in the Antilles by Dazille and Bason (1776), and in Jamaica by Edward (1790).

Dubini[3] of Milan was the discoverer of the parasite in 1838, and Siebold (1845) classified the nematode in the family *Strongylus*. Griesinger,[4] in 1854, and Wucherer,[5] in 1872, demonstrated that the widespread disease known as "Egyptian chlorosis" was caused by this parasite. In 1877 Grassi[6] and others established the fact that the anemia of brickmakers, long known in Italy to be of an epidemic nature, was a form of uncinariasis. It seems altogether probable that the Italian laborers carried the infection to the St. Gothard tunnel and caused there the fatal outbreak of 1880.

Since then the hook-worms have been observed in nearly all European countries, in Japan, Asia, Australia, India, South America and the United States. Among the names given to the disease are brickmakers' disease, geophagia, cachexia Africana, tunnel disease, miners' disease, mal d'estomac, ankylostomiasis, and more recently, the designation which is perhaps preferable, uncinariasis.

Of especial interest is the appearance of the malady in our own country. Clinical descriptions of the disease have been given by Chabert in Louisiana (1820), Duncan in Alabama (1849), and Lyell in Georgia (1849). Herff[7] also describes a case in Texas seen in 1864, where worms resembling uncinaria were found in the duodenum. Belfield[8] was one of the first to identify the hook-worm in America. His specimens were taken from the intestines of cats dying of anemia. They were sent to him by Dr. Gelbach of Mendota, Ill.

CHRONOLOGICAL LIST OF CASES.

This list reviews in chronological order the cases which have been observed in man in the United States:

I. Blickbahn[9] (1893): One case, a brickmaker, seen in St. Louis. Probably infected in Germany. Profound anemia. Eosinophiles increased. Eggs and worms observed.

II. Möhlau[10] (1896): From Buffalo, N. Y. A brickmaker who acquired the disease in the same locality. Diagnosis from eggs. Anemia.

III. Ibid. (1896): From Buffalo, N. Y. A farmer. Probably infected in region of home. High grade anemia. Parasites and eggs expelled by high rectal douches. (No mention is made of a previous administration of an anthelmintic.)

IV. Ibid. (1896): From Buffalo, N. Y. A stone cutter. Disease contracted from Italian companions in brickyard. Anemia. Eggs of *Uncinaria duodenalis* and of *Tenia solium*.

V. Ibid. (1896): From Buffalo, N. Y. A boy who had suffered from a fever resembling typhoid. Infection probably in Buffalo.

VI. Ibid. (1897): From Buffalo, N. Y. A bricklayer, who brought the parasite from the St. Gothard tunnel. Anemia. Diagnosed by eggs.

VII. Tebault[11] (1899): A case in New Orleans; developed in that city. Pernicious anemia symptoms. Both ova and parasites seen.

VIII to XI. Ashford[12] (1900): Four cases at Glen Island, N. Y. All were natives of Porto Rico who had been in the United States only a few months. Anemia in all. Eggs and worms found. Species, *Uncinaria americana*.

XII. Dyer[13] (1901): A case in a woman in St. Louis. Source of infection not stated. Marked anemia. Diagnosis from ova.

XIII. Allyn and Behrend[14] (1901): In Philadelphia. A boy, who brought the disease from Italy. Anemia of high degree. No eosinophilia. Ova and worms found.

XIV. Gray[15] (1901): A native of Virginia. Disease contracted in the state. Anemia. Eggs and worms demonstrated.

XV. Schaefer[16] (1901): In Texas. Infection occurred in Mexico. Anemia. Parasites and eggs seen in stools; also *Tricocephalus dispar* eggs.

XVI to XXIII. Smith[17] (1901): In Texas. Discovered the eggs in eight university students at Galveston. The parasites were obtained in one instance and were of the species *Unc. americana*.

XXIV. Boggess[18] (1901): In Pennsylvania. Disease imported from Italian brickyard. Anemia of pernicious type. Ova and parasites observed. *Tricocephalus dispar* ova also present.

XXV. Yates and Hall[19] (1901): In Maryland. A sailor, who brought the disease from Mexico or some other tropical country. Anemia. Eosinophilia. Diagnosed postmortem by ova and worms.

XXVI to XXVIII. Boston[20] (1901): Three cases in Pennsylvania, one a student. All brought the infection from Porto Rico.

XXIX. Claytor[21] (1902): Reported the affection in a farmer in Virginia. Anemia profound. Eosinophilia. Both ova and parasites obtained. Species, *Unc. americana*.

XXX. Greene[22] (1902): In New York. A sailor, infected either in Brazil or Florida. Diagnosis from eggs.

XXXI-XXXII. Hemmeter[23] (1902): In Baltimore, Maryland. Two cases, a soldier and a sutler, both from Porto Rico. Eggs and worms seen.

XXXIII. Herrick[24] (1902): In Washington, D.C. Subject was a soldier from the Philippines. Extreme degree of anemia. Eosinophilia pronounced. Eggs and worms both demonstrated. Species, *Unc. duodenalis*.

XXXIV to XLVI. Harris[25] (1902): In Georgia. A farmer, native of Georgia, never out of the state. Anemia. No eosinophilia. Eggs and worms detected. Species, *Unc. americana*.

XLVII. Ibid.[26] (1902): Thirteen other cases in Georgia, all farmers. In one case the disease was brought from Florida, in another from Alabama. The remaining eleven were infected in Georgia. Anemia of varying intensity. Diagnosed by presence of eggs. Species, *Unc. americana*.

XLVIII to L. Moffitt:[27] Three cases in California, two coming from Mexico and one from the Philippines. Diagnosis by ova.

LI. Capps: The writer's case herewith reported, from Chicago. Infected in Panama. Pernicious anemia symptoms. Eosinophilia. Both eggs and parasites observed. Species, *Unc. duodenalis*.

SUMMARY OF CASES.

In all there have been 51 cases reported. A glance will show that the seaboard states have suffered most. New York leads the Atlantic coast group with 10 cases; then comes Pennsylvania with 5; Maryland with 3; Virginia with 2, and the District of Columbia with 1. Georgia exhibits the largest number in the south (14),

Texas follows with 9 cases. Louisiana has but one. California claims 3 cases on the Pacific coast. The inland states are represented by Missouri (2) and Illinois (1) alone, and it should be emphasized that in the two states last named the disease was imported in every instance.

A more important inquiry concerns the localizing of the regions in this country where the disease is endemic. With the exception of 3 cases originating in New York and 2 in Virginia, the infected areas are situated in the states adjoining the Gulf of Mexico, viz., Georgia, Texas, Alabama, Florida and Louisiana.

This fact becomes significant when it is stated that of the imported cases 9 came from Porto Rico, 4 from Mexico and 1 each from Panama and Brazil respectively. The Philippines contributed 2 cases, Italy 3, Switzerland and Germany 1 each.

The prevalence of uncinariasis in the South and in the West Indies is far greater than the published cases would indicate. Competent observers believe that the "clay-eaters" of the South and many of the ill-nourished anemic inhabitants are subjects of the malady.*

PREVALENCE IN THE PHILIPPINES AND WEST INDIES.

Uncinariasis is a common disease in the Philippines, according to the reports of our army surgeons.

From the 8 cases observed in Cuba this year by Guiteras,[38] we may reasonably believe it to be a common affection also among the Cuban natives.

Ashford believes that the complaint is widespread in Porto Rico. He selected 20 cases of so-called "tropical anemia" and found the ova of uncinaria in 19.

SPECIES OF PARASITE IN THE NEW WORLD.

Less than a year ago Stiles[28] discovered that the hook-worm found endemic in Texas, Virginia, Georgia and the West Indies was of a different species from the old-world type, and named it *Unc. americana.* This species is characterized by an anteriorly situated vulva, a dorsal conical tooth, and in the caudal bursa of the male by a bipartite division of the dorsal ray.

Most observers have not attempted to differentiate these varieties. The case of Allen and Behrend, which came from Italy, was infected with the *Uncinaria duodenalis,* as might be expected. Herrick's case from the Philippines was also *Unc. duodenalis.*

My own case, from Panama, I first described as the old-world species and subsequently this opinion was confirmed by Dr. Stiles, to whom I forward specimens. It is surprising to find the new-world type in the West Indies and the old-world species in Panama. Are we to consider the Panama region as contaminated by the foreign canal workers, or is the duodenalis endogenous on this continent as well as *Unc. americana?* The question can not be definitely answered at present, but it seems not unlikely that the duodenalis was imported to Panama by Italian laborers employed on the canal. Light would be thrown on this question by an investigation of the species occurring in Mexico and the countries adjacent to Panama.

CULTURE EXPERIMENTS.

The conditions necessary for the hatching out of eggs and the growth of larvæ are:

(*a*) A suitable culture medium. The feces have proven better than artificial media.

(*b*) Moisture. The larvæ die rapidly if the medium is allowed to dry. The ova develop best in a soft medium without too much water.

(*c*) The temperature should be not above 37° C. and not below 20° C. Between 25° and 30° C. the growth is most rapid. High temperature and freezing destroys both eggs and larvæ.

(*d*) Air. Without a supply of oxygen the eggs do not hatch. Hence the outer layer of a culture shows many embryos, while the inner portion may contain eggs only.

The following experiment was tried: A bottle filled with feces was tightly corked and kept at a temperature of 27° C. for two weeks. No larvæ were present. The same specimen was replaced in the incubator with the cork removed under the same conditions of moisture and temperature. Within 46 hours embryos could be seen in great numbers.

At a temperature of 27° C. the embryos were developed to maturity. The structural changes incident to growth and the several stages of shedding the outer cuticle (ecdyses) could be easily followed. I was particularly impressed with the voracious feeding of many younger forms. One could see particles of matter carried down swiftly from the mouth to the bulb-like end of the esophagus, impelled by a vibratory sucking action. Within the bulb the material was macerated by the claw-shaped teeth and forced downward in the alimentary canal, where it was finally expelled from the anus by a contraction of the lower extremity. The complete process from ingestion to expulsion occupied less than one minute and illustrates the surprising blood-sucking capacity of the parasite. Larvæ eight weeks old are still present in our cultures.

I am at present feeding the living embryos to cats and dogs in an attempt to infect them. Previous experiments along this line, however, have been unsuccessful.

MODE OF INFECTION.

Man contracts the disease by swallowing the living larvæ. Both food and drinking water may carry the contagion, but perhaps a more common method results from uncleanliness of the hands. The subject gets the hands covered with the larvæ-contaminated mud, and in conveying food to the mouth ingests the parasites. In one drop of mud there may be dozens of embryos, so that a few exposures of this nature are sufficient to produce a severe infection. Among the "clay-eaters" the danger of infection is obviously very great.

The soil itself may owe its contamination to the careless deposit of feces from an infected individual. Thus one subject may cause an epidemic among workers in clay that was previously free of larvæ.

Looss[29] has proven that the larvæ may also enter the body through the epidermis. Bentley,[30] experimenting along the same lines, has discovered that the "ground itch" of coolies is set up by an invasion of uncinaria larvæ into the skin.

SYMPTOMS.

The symptoms fall into two general groups:

(*a*) Gastrointestinal. Severe colicky pains in the abdomen, nausea and vomiting and diarrhea occur often in the acute forms, less frequently in the chronic.

(*b*) Those arising from anemia of varying intensity. Most characteristic are the cases with a profound anemia who suffer from dizziness, dyspnea, hemorrhages, edema and exhaustion.

Many individuals who harbor a small number of worms, suffer, doubtless, from vague symptoms of malaise, indigestion and malnutrition. Still others do not consider themselves ill.

* See Editorial, p. 36, and Society Report, p. 48, in this issue.

DIAGNOSIS.

1. The *occupation* is often suggestive. Workers in dirt and clay, in brickyards, tunnels, mines or canals; soldiers and travelers exposed to unsanitary conditions of camp life with a large number of men; farmers living in contaminated localities are especially liable.

2. *Anemia* of high grade without a satisfactory cause should direct the attention to an investigation of the blood and stools.

3. *Examination of the blood* in typical cases reveals a condition resembling pernicious anemia. There is a great reduction in the hemoglobin and red corpuscles. Nucleated red corpuscles, however, are few in number and the normoblasts outnumber the megaloblasts. The statement is frequently made that the blood of uncinariasis is a chloranemia, and therein differs essentially from the pernicious type. Such a distinction can usually be made in the milder cases or in the early stages of the disease, but when the blood count falls below 1,000,000 the color index becomes higher and often is above normal. In like manner the volume of the erythrocyte, which is much diminished in the early stages, begins to increase with the progressive oligocythemia and may exceed the normal. This is determined by using the hematocrit in connection with the Thoma Zeiss apparatus, according to the formula: Percentage of erythrocytes by volume (hematocrit) divided by percentage of erythrocytes by count equals percentage volume of the average erythrocyte or volume index. In the present case the last two examinations gave a volume index of 1.17 and 1.22 and a color index of .80 and .88 respectively. We must be prepared, therefore, to find in many of the severe cases a color and volume index essentially the same as occur in pernicious anemia.

In our case macrocytes were present measuring 10 to 12 microns in diameter, but none of the huge cells seen so often in pernicious anemia. Poikilocytosis was less pronounced than usual in primary progressive anemia.

Eosinophilia is the most striking characteristic of the blood when it is present. Most cases of uncinariasis have from 3 to 30 per cent. of eosinophiles. The parasites play two distinct rôles with regard to these cells.

(*a*) A local chemotactic influence which brings eosinophiles in large number to the vicinity of their habitat.

(*b*) A toxic agent secreted by the parasite that is carried to the bone marrow and stimulates the production of eosinophile cells. The evidence of the former process is found in the usual profusion of eosinophile granules in the feces. The latter gives rise to the excess of eosinophile cells in the circulating blood.

Absence of eosinophilia does not at all exclude the possibility of hook-worms.

4. *Examination of the feces* is the only means of making a certain diagnosis. The ova found in a fresh specimen are characteristic, particularly the segmenting forms. *Oxyuris vermicularis* eggs are about the same size, but flattened at the ends; moreover, they are nearly always hatched out before leaving the alimentary canal. Further proof may be obtained by cultivating the larvæ or by expelling the adult worms with anthelmintics.

Charcot-Leyden crystals are almost always present in varying number. Their existence indicates not necessarily uncinariæ, but any form of intestinal parasite. Leichtenstern[31] says they are almost constant with uncinaria and *Anguillula intestinalis*, common with *Ascaris lumbricoides* and *Oxyuris vermicularis* and often present with *Tenia solium*. According to Bucklers[32] the crystals disappear after the worms are expelled, so that the persistence of crystals is proof that some parasites remain in the bowel.

A close relationship seems to exist between eosinophilia and the Charcot-Leyden crystals, as first pointed out by Zappert.[33] In fact, Neusser[34] asserts that the crystals represent a product of the granules. He cites in support of his view that eosinophiles and Charcot-Leyden crystals are both present in leukemia, in the sputum of asthma, in bone marrow, in mucous polypi of the nose and the vesicles of pemphigus. Gerhardt[35] points out the danger of mistaking for these crystals those formed from fatty acids.

Mixed infections are very common. The *Anguillula intestinalis* is not rarely met. Perroncito[36] states that this nematode was often associated with the hook-worm in the St. Gothard epidemic. He believed a graver form of anemia thus resulted than from the single infection, but Bozzolo[37] and Grassi opposed the theory.

In the American series the *Tricocephalus dispar* occurs most often with the uncinaria. Its effect on the patient is probably trivial.

TREATMENT.

The disease is curable if recognized early and treated properly.

The bowels should be cleared the evening before administering the anthelmintic. Thymol in a two-gram dose repeated in two hours and followed by a saline is effective as a rule. Santonin and male fern are not so satisfactory.

Prevention can be best accomplished by:

1. Drainage and drying of swampy lands.

2. Where numbers of men are working in tunnels, ditches or canals, by examination of the feces of workmen and the exclusion of infected individuals.

3. Proper disposal of dejecta in suspected localities by burning or by disinfectants.

4. Enforcement of cleanliness in washing the hands before taking food.

5. A pure water supply.

The case here reported, so far as I know, is the first instance of hook-worm disease originating in Panama. Coming as it does from the Chagres river, which is in the path of the Panama canal, its importance is evident. In the near future thousands of workmen will go from the United States to work on the great canal. Unless precautions are taken, not only will many of these men fall a prey to the disease, but they will bring back and plant the infection in the soil of numberless localities.

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PROGNOSIS IN MENTAL DISEASES.*

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In the realm of practical clinical medicine there is no one feature that gives strength to the art and science like that of making a diagnosis. Upon this foundation—diagnosis—must be erected the superstructure of the case, embracing all of the primary essentials, of which it may be said that prognosis, by its approach to the personal element in the case, becomes of very great importance. Prognosis, then, is necessarily founded upon diagnosis. However, there enter into its consideration certain basic or fundamental essentials which make it both an art and a science.

Of the essentials contributing to make prognosis an art we will mention the ability to give estimates based upon experience. Herein are noted the deductions which acuity of observation and abstract reasoning give to the clinician, the quality of the observer which gives color to his art in diagnosis. Again, the cultivation of these faculties or of qualities of mind go to give, or make up that intuitive ability which is the art in its perfection. The science of diagnosis is perhaps more precise and more comprehensive in its observations, but not one whit more practical nor more sure in its forecast. Science in prognosis must found its judgment upon the judgment of diagnosis, which, even when founded upon almost absolute facts, is nevertheless fallible. "The science of prognosis is the science of forecasting; it must look to the art of discrimination, which, in truth, is a personal art; the observer being the artist." We can not draw a line of discrimination between the art and the science of prognosis. All that we can do is to become ourselves observers that we may contribute our mite to the accumulated experience and judgment so that on these may be formulated certain axioms which enter into and are a part of every diagnosis in mental diseases.

"As observations become more accurate as the number of observed cases increases, and as classes are better and better distinguishable, the nearer will the physician be able to approach an accurate prognosis, though the time when any sufficient rules can be applied to individual cases must long be out of our sight and the application of any approximate rules must long be subordinate to the instructive tact of the educated physician himself, who alone can apprehend the sum of the peculiarities which must modify their application to individual instances." (Allbutt.)

In mental diseases the question of heredity is ever of great importance, not so much perhaps as some of the older observers would have us believe, or as important as environment and all that goes with it. Family history should cover both of these questions, viz., the hereditary factor and the environments of the home. It is not timely to here bring into consideration the theory of heredity, even in its most modern conception, but let me enforce what doubtless is the experience of all who have had extended observation of insanity in its varied forms, that aside from the essentially degenerative insanities, environment has more to do in becoming a factor in prognosis than does the much discussed hereditary influences. Family history must, therefore, not only include the search of the family tree, but the soil in which it grows and the ill winds and wafts of fortune and misfortune which play among its branches and affect this one branch in particular.

The etiology of the mental disease is a factor which we all grant is an important one—one, in fact, which alone may give a forecast, and thus proclaim the prognosis even at the first consideration of the case. Again, we are confronted with the hereditary element, which may or may not modify our judgment as to the facts presented. If we will be sure to sift truth from the mass of utterly inconsequential chaff, which is the rule and not the exception in the history of mental cases, then the assigned etiology may be of value. It is impossible to draw any deductions as to prognosis from the tables of etiology published in the average report issued by the state hospitals of this country. Such tables are absolutely worthless as evidence upon which to found even approximate rules of prognosis; they become matters of record through the channels of the average insane inquisition, original hospital receiving records and the lax and superficial observations of the hospital physicians. This statement, of course, does not apply to those institutions in which the science and art of mental diseases is studied and in which the spirit of clinical medicine pervades the work of the staff, from the superintendent down the line to the ward attendants. The study of etiology in such hospitals is worthy of our greatest consideration. We have not sufficiently advanced in mental diseases to formulate definite rules of prognosis as based upon etiology, excepting in essentially organic cases—cases having a definite pathology. In all others we must apply our art and allow for our limitations and shortcomings as individual "artists."

Pathology is contributing its share, and a great share it is, too, toward the solution of problems of prognosis. It is from this field of certainty that we look for the advances that are to open to us many of the mysteries of the mind, and, while we may never cross that seemingly unbridgable, unknowable territory in which abides what we call mind, yet the effort of seeking for it will go on, and possibly deeper recesses may yet be opened to us.

Clinical history is of as much importance as the study of the case in its clinical aspects when first we confront it. We can only formulate deductions of what is to come by a study of what has gone before. We largely judge of the future, in medicine, by the past, and every case wholly upon its merits. The clinical history of every case, therefore, is a prime essential. It must be comprehensive, not superficial, skipping along, hitting the high places here and there, but should embrace all clinical facts, which must be a part of the record. Every case of mental disease is worthy of a record, for when studied closely and properly recorded, facts are accumulated which eventually become axioms upon which prognosis is truly and substantially founded. If every case in our state hospitals had a clinical record (which is worthy of the name of record) uniformly in keeping with all other records, then we could use such knowl-

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Nervous and Mental Diseases, and approved for publication by the Executive Committee: Drs. Frederick Peterson, Richard Dewey and H. A. Tomlinson.

edge in formulating clinical deductions, then the science and art of mental diseases could better be studied and their effects for good or evil better known. Especially is this true of the study of diseases of metabolism—a class of diseases which modern chemical pathology is showing has a very important bearing upon mental diseases. In fact, we may say that, as this department of pathology develops, many of the problems which confront the chemist and the neurologist will be shown to be problems of clinical medicine.

The work of Christian Herter of New York is doing much towards the establishment of a more definite prognosis in mental disease, and opening the way for great advances in the treatment of these conditions. Herter's work shows how necessary it is for the successful chemist—the successful neurologist—to first be a successful physician, a broadly trained observer, a widely experienced practitioner, so that the whole scope of internal medicine may first be viewed before measuring the limitations or encompassing the field within the narrow confines of the specialty of nervous and mental diseases. When we become broad enough in our art and science prognosis will then be more comprehensive. Prognosis must, of course, always depend upon the observer; his art and science will say whether or not the prognosis is comprehensive. However, we endeavor in formulating a prognosis to determine the prospects in the case under consideration. This is summarized from a diagnostic study—a differential study of the points in diagnosis, and last, the condition of the patient.

If from the first study a diagnosis is determined then the prognosis will be based upon the nature of the case and our own personal deductions based upon our experience in similar cases, our knowledge based upon the experience of others and the literature of to-day. The rules are not absolute, but vary with the elasticity of our own experience and knowledge. The patient's future or forecast is determined largely on the result of our study of his attack. We have diagnosed the form and class of cases to which the case belongs, and then within the limitations of our experience and knowledge we are able to give at least a prospect—a judgment—the reliability of which varies with judgment of the observer.

The patient's future is of importance to himself and his friends and we can do no better act within our art than to give a prognosis in mental disease. We can be of no greater use to the friends and those depending upon him than that embraced in giving a prognosis. It must be remembered that a prognosis thus given must be founded on a summary of the whole art and science of prognosis and when thus given with the sincerity of an honest and conscientious clinician, then a duty well done has been discharged. The patient's future has an important bearing upon his descendants, but only in so far as the question of heredity enters, and also the question of environment which has contributed toward the evolution of mental disease. The mere abstract question of the effect upon the children born after mental disease or during mental disease is one to be determined in each individual case; a question requiring careful judicious consideration, and not to be lightly or flippantly disregarded.

In my own experience the question of prognosis is one which appeals to the whole of one's manhood, touches our heart strings, and gives earnestness of endeavor in treatment. It is a problem which concerns more than the individual and, in fact, more individuals in mental disease than in any other class of cases in internal medicine; hence we must cultivate broad and comprehensive ideas in our observation and study, grasp every opportunity to increase our knowledge and experience that we may be one of the many observers who are adding to accumulating knowledge of mental diseases upon which the art and science of prognosis must rest.

In conclusion, I would say that:

1. Prognosis is both an art and a science.

2. Prognosis should be founded upon the following: *a,* family history; *b,* etiology; *c,* pathology; *d,* clinical history; *e,* complexly related physical diseases.

3. Prognosis should be comprehensive and attempt to consider: *a,* the prospects in the present attack; *b,* its effect upon the patient's future; *c,* its effect upon his descendants.

Clinical Report.

A CASE OF URETERO-TRIGONO-INTESTINAL ANASTOMOSIS FOR THE RELIEF OF EXSTROPHY OF THE BLADDER.*

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The patient is a male, aged 29, who entered the Lucas County Infirmary Hospital April 2, 1902. The father died of Bright's disease; the mother of so-called dropsy; brothers and sisters all living; no tuberculosis or cancer in the family.

The patient relates that since birth he has had no control over his urine; it has always dribbled away, but he did not know what it was. He was operated on, when still a child, in Griefswald, Germany, but can not give the exact nature of the operation. He has always been obliged to wear some sort of receptacle to hold the urine, otherwise he has enjoyed the best of health. About one year previous to his entrance to the hospital, he underwent several operations for the relief of his condition. These operations consisted in the endeavor, by means of plastic operations, to cover the defect in the bladder, but they were not successful. At the same time he also underwent an operation for the relief of a large left inguinal hernia, which was thereby cured. He states that previous to these operations his genitals consisted of a rudimentary penis which was double, and that the urine flowed from one side of the organ. The rudimentary penis was removed during the plastic operations.

Examination of the patient, at time of entrance, revealed a well-nourished, tall, muscular individual presenting no emaciation; heart, lungs, liver and spleen were apparently normal. Above the symphysis pubis is an area of deep red tissue looking like granulation tissue and covered by a purulent secretion, which on close inspection proves to be a part of the bladder; from the lower part of same the urine can be seen to spurt at intervals of thirty to sixty seconds; both ureteral orifices can be seen and ureteral catheters passed into them. The abdominal wall, as well as the anterior wall of the bladder, is absent, which permits the posterior wall to prolapse forward.

The diagnosis of exstrophy of the bladder was easily made. Catheterization of the ureters, and examination of the separate urines gave the following: Left kidney—urine runs very freely through the catheter and is of a clear amber color, acid in reaction, highly albuminous; on microscopic examination, epithelial cells, leucocytes, urates, but no casts, are found. Right kidney—urine is of a dirty grayish color, flocculent and opaque, containing albumin, but not so much as is present in the other kidney; on microscopic examination, there are found great quantities of pus, red blood corpuscles and epithelial cells, but no casts. The urine examination reveals mainly the following facts: Both kidneys are the seat of chronic inflammation; the

* Presented before the Lucas County Medical Society, Oct. 3, 1902.

right one more so than the left, which is the result of ascending infection.

OPERATION.

A uretero-trigono-intestinal anastomosis, modified after Maydl, was made on April 19, 1902, Drs. Brewer and Steinfeld assisting. A mixture of chloroform and ether was the anesthetic used. The patient was prepared in the usual manner, while special care was given to the sterilization and preparation of the exstrophied portion of the bladder, which was the infected area to be feared. A ureteral catheter was passed into each ureter; the incision made immediately above the bladder about four inches in length and the peritoneal cavity opened; the patient raised to the Trendelenburg position. The intestines were held back by sponges. The incision was carried downward through the center of the bladder (between the ureters), dividing it in two. The ureters could be plainly seen, running outward, backward and upward; with the catheters in them they were surprisingly large and easy to manipulate, which greatly facilitated the work. Each ureter was dissected free by cutting it away from the bladder, leaving a circle of bladder tissue about one-half inch around the vesico-ureteral

Six months after operation.

openings, thereby leaving the natural ureteral openings into the bladder unmolested. The peritoneum on the right side was incised and reflected along the course of the ureter, permitting the ureter to be lifted from its bed. The peritoneum was further stripped from the posterior wall of the pelvis around to the rectum. An opening into the right lateral side of the rectum was next made, at about the level of the sacral promontory, into which the ureter with bladder-wall attached was sutured; first mucosa of bladder to mucosa of rectum by a continuous silk suture (black iron-dyed silk), then serosa of bladder to serosa of rectum with a like continuous suture. A few interrupted sutures were also applied to make the anastomosis more secure. The reflected peritoneum was finally sutured back into place (by a continuous catgut suture) making the entire anastomosis covered by peritoneum and placed extraperitoneally. About three and one-half inches of the lower part of the ureter was placed in a new position. The same procedure as described for the right side was made on the left side; the anastomosis on the left side being made opposite to the one on the right, a trifle lower. The peritoneal cavity was thoroughly irrigated with salt solution, sponges removed and patient lowered to the flat position. All of the remaining portions of the bladder walls were extirpated, hemorrhage being controlled by ligatures and cautery.

The incision was closed by interrupted silkworm-gut sutures supplemented by layer suturing of catgut. In the lower angle of the incision, where tension was great, a few tension sutures were applied. A large drainage tube was left in the lower angle of the wound, and the whole abdomen supported by broad adhesive plaster strips.

After the operation the patient suffered severely from shock, but, under stimulants and salt infusions, recovered. Immediately after the operation, the urine seemed to irritate the rectum, the desire to urinate being constant, which gradually disappeared as the rectum became more tolerant, until a tolerance of three to four hours was obtained. The abdominal wound became infected as was anticipated, suppuration was profuse which ceased after a time, allowing the wound to heal gradually, until at present it is practically closed.

The patient's condition at present is as follows : He is able to get around with no inconvenience; does considerable work about the hospital, wearing an abdominal bandage; voids urine through the rectum every three hours and states that he can hold it as long as six hours, if he wishes to do so. The bowels move regularly, and the urine is voided independent of bowel evacuations. He states that sometimes during the night the urine is passed unconsciously, during sleep. About three weeks ago he relates having passed a stone from the rectum, the nature of which was not determined, but may have been a calculus formation or lime deposit about the opening of the ureters into the rectum. The abdominal incision has united and is practically healed; in the lower angle is a small area of granulation tissue where the bladder was extirpated; this is dressed daily and is rapidly closing. In the upper angle of the incision a slight hernia has developed, which is especially noticeable when the patient is in the upright position.

Demolition of "Crazy Tower" at Vienna.—The great city hospital at Vienna is to be rebuilt and the famous round tower in which the insane were confined will soon be demolished. It was built about 1780, and usually contained 270 inmates crowded into small cells, four in a cell. There are no windows and merely narrow slits in the thick wall for light and air, with no means of heating the rooms. Of late years it has been used as a store room.

The Teaching of Common Diseases.—It has been said, and with some reason, that an average medical student, on graduation, is far better prepared to treat diseases and conditions he is never or rarely likely to see than those of common occurrence. He has probably seen much of major surgery, and is well informed regarding typhoid fever and diseases of the blood, but when he is brought face to face with a cold or a backache or any of the thousand and one minor ills of life, he is far less a master of the situation. It would be a poor policy to neglect the rarer affections for the sake of the commonplace, but it is almost equally unfortunate and far more unpractical to ignore the latter in the hope their knowledge of them may somehow come in later life. The fact apparently is that the instruction given is apt to concern itself chiefly with disease in its unusual manifestations. Interesting cases predominate. We rarely hear of a clinical exercise before a class devoted to the everyday variations from health. A course in common diseases remains to be offered, and our students are suffering in consequence. A remedy is perhaps difficult to find in the wards of a large hospital, where the patients are admitted for various reasons, but certainly not because they are commonplace. The solution lies in the more intelligent and systematic use of out-patient departments, to which each day great numbers come afflicted with the most trivial ailments. If the students could actually study these patients, under the direction of authoritative teachers, they would gain a knowledge which the ordinary clinical lecture is not likely to give. How this may be done is a matter of detail, but for out-patient departments to be used chiefly as opportunities for physical diagnosis and not for the detailed study of disease as such, is a misfortune which our improved organization should do all in its power to remedy. —*Boston Med. and Surg. Jour.*

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UNCINARIASIS (ANKYLOSTOMIASIS) IN THE SOUTHERN STATES.

A little over a year ago we stated[1] from facts then known that ankylostomiasis or uncinariasis was apparently a rare affection in the United States. Later data have modified this view, numerous cases have been observed, one of which very completely reported is published in this issue. During the past few weeks, moreover, some very important observations have been made in the Carolinas and Georgia, which are not only of great scientific interest, but which also will probably be of great value in improving the economic and physical conditions of the poorer population of some of the southern states. These observations have led to the discovery that "hook-worm" disease is extremely prevalent among the poorer classes of the southern whites.

Ankylostomiasis, or, more properly speaking, uncinariasis, has for generations prevailed more or less extensively in various parts of Europe and in Egypt. It is known under various names, such as tunnel disease, tunnel anemia, miners' anemia, brickmakers' anemia, Egyptian chlorosis, tropical chlorosis and hook-worm disease. It occurs most frequently in persons whose occupations necessarily bring them in contact with fresh or dried earth. It was the disease that proved so fatal to the workmen engaged in the construction of the St. Gothard tunnel. It is due to infection of the intestinal tract, particularly the duodenum and jejunum, with a small nematode parasite, the *Uncinaria duodenale,* the male measuring from 6 to 10 mm. long, and the female from 10 to 18 mm. The parasite produces anemia, not only by sucking blood, but also by causing an injury to the intestinal wall where it has attached itself, from which oozing of blood continues after it has let go. There is a possibility also that it produces a toxic substance which has a hemolytic action on the red blood cells. The eggs develop only after leaving the intestinal tract, so that for every adult hook-worm present in the intestine a separate larva must enter the body. Infection is believed to occur usually by the individual conveying the larvæ to his mouth on infected hands. Loos, in 1901, published the results of experiments which led him to believe that infection occurred by larvæ entering through the skin. During the present year, Bentley advanced the view that "ground-itch" or "pani-ghao," a cutaneous disease, is due to the entrance, subcutaneously, of hook-worm larvæ.

Previous to 1902 not more than twenty-five observations had been reported in the United States. These infections were all believed to be due to the European species. In May, 1902, Dr. Stiles of the United States Bureau of Animal Industry, Washington, reported[2] that he had discovered a new species of uncinaria, to which he gave the name *Uncinaria americana,* in the feces forwarded him from a case in Galveston, Texas. This parasite differs from the old-world species in two main features: the eggs are considerably larger and the two ventral, recurved hook-like teeth of the adult are replaced by a pair of semilunar plates in the American species. Stiles[3] has recently described this parasite more fully in a bulletin issued by the Department of Agriculture. Since then observations have been accumulating to show that uncinariasis is very common in some of the southern states. All the infections appear to be due to the new American species. H. F. Harris of Atlanta reported his first case in July, 1902, and since then he has observed thirteen cases, eleven in Georgia and one each in Alabama and Florida. He believes that the disease is a much more frequent cause of severe anemia in the south than is malaria, and is of the opinion that investigation will prove that it is the most prevalent of all the severe diseases in the southern states. Guiteras has reported cases from Florida and Cuba, and the disease is known to prevail in Porto Rico.

Recently, Stiles has spent considerable time in the Carolinas, Georgia and Florida investigating the prevalence of uncinariasis. He made a preliminary report[4] of his studies at a meeting of the Sanitary Conference of American Republics, held in Washington, December 2 to 4. He finds that the disease is extremely prevalent among the poor whites of the sand and pine-woods districts of the south. He believes that its prevalence in succeeding generations has resulted in the inferior physical development and lowered mental caliber of these people, and that it is the cause of the proverbial laziness of the southern "cracker." Men and women of 20 to 23 years of age resemble in appearance children of from 14 to 16. The disease is believed to prevail also in the "dirt-eaters." In this remarkable malady there is a vicious circle, the uncinariasis probably being in part responsible for the depraved appetite and the depraved appetite keeping up the infection. Owing to the marked secondary anemia produced, uncinariasis closely resembles chronic malaria, for which it has long been mistaken. The disease is readily recognized by finding in the stools the characteristic segmenting ova, from which the embryos can be easily cul-

1. THE JOURNAL A. M. A., Nov. 30, 1901, xxxvii, p. 1466. See also Original Article, p. 28, and Society Report, p. 48, on this subject.

2. American Medicine, May 10, 1902, p. 777.

3. The Significance of the Recent American Cases of Hook-worm Disease. (Uncinariasis, or Ankylostomiasis) in Man. (Reprint from Eighteenth Annual Report of the Bureau of Animal Industry, 1901.)

4. THE JOURNAL A. M. A., Dec. 20, 1902, p. 1611.

tivated. Fortunately, it is usually amenable to treatment. Thymol in 30-grain doses at 8 and 10 a. m., followed by a purgative at noon, nearly always clears the intestinal tract of the adult worms.

It can readily be seen what a far-reaching effect this most important discovery will probably have in improving the physical and mental status of the poorer classes, both white and colored, of the south. It is most sincerely to be regretted that the daily press in certain parts of the country has, as is too often the case, done much to throw discredit on scientific investigations by announcing to the public in a most sensational manner that "The Germ of Laziness Has Been Discovered."

THE VIRUS OF SMALLPOX.

The minute bodies discovered in the vaccine lymph of calves by Van der Loeff still continues to puzzle investigators. Reasons for this are the repeated failures to find, even by improved methods of bacteriologic research, any specific micro-organism as a cause for variola and the difficulty in accounting for the vaccine bodies except as parasites. Foremost among those works maintaining their intrinsic somatic origin is that of Hückel ascribing them to a specific degeneration of the epithelial cells; prominent among the supporters of their parasitic nature is Guarnieri, who concluded, from a study of their morphology as they occur in the vesicles produced by vaccinating rabbits' corneas, that the vaccine bodies are protozoa.

Soon after the work of Guarnieri, L. Pfeiffer found them in the blood of both variolous and vaccinated people as free, swimming, nucleated bodies, one-fourth the size of a red corpuscle. These observations were soon confirmed by Reed in this country, who found similar bodies in the blood of vaccinated monkeys and calves. Although he also found them in the blood of a monkey and a child, both of whom were unvaccinated, he stated that the vaccine bodies are greatly increased in the blood during the height of vaccinia, whereas before and after such periods they are rarely seen.

Experiments directed to their artificial cultivation have been made repeatedly; lymph containing them has been transferred to both fluid and solid media, and at later periods animals have been vaccinated from the media. The objection made to such experiments are that successful vaccination was due to the employment of diluted virus rather than freshly grown vaccine bodies.

Other observations similar to those noted above and evidence from various sources of the identity of vaccinia and variola have served to augment the importance of the vaccine bodies—occasionally referred to as Guarnieria—as possible causative agents of both conditions. The work of Wasielewsky[1] in no small degree increased the growing interest in this problem. He produced corneal vesicles by vaccination in 46 rabbits by transferring the exuded lymph from one animal to another successively; demonstrated the constant presence of vaccine bodies in the lymph and ascertained that when filtered lymph was employed the bodies were absent and no vesicles formed. These observations apparently make the development of the eruption of vaccination contingent on the presence of the bodies in question, yet it is not unlikely that the real *causa causans* has escaped discovery, that in the experiments of Wasielewsky it, too, failed to pass the filter and that the vaccine bodies represent the consequences in part of its action on the tissues. Ishigami[2] has recently announced the artificial cultivation of these alleged protozoa. In order to procure material free from bacterial taint, he made intravenous injections of vaccine lymph in calves. From the vesicles that appeared after a few days on various mucous surfaces and the inner aspects of the thighs and ears, he obtained lymph uncontaminated with bacteria; later he secured the same result by adding small quantities of carbolic acid to lymph. The medium on which the vaccine bodies were grown consisted in large part of epithelium from unvaccinated calves. The evolution of the parasite in cultures made from the crusts of variolous or from human or bovine lymph resembled the series of changes these bodies undergo in the tissues. Vaccination with subcultures was successful until the fourth transplantation; the animals vaccinated with such cultures remained refractory to further vaccination and the vaccine lymph collected from them produced typical vesicles in others.

The production of vaccinia with subcultures removes the objections of those who would attribute any success from cultures to the virus originally sown on the medium. On the other hand, it may be that vaccination from cultures of the second and third transplantations was due to the growth of some ultra-microscopic organism, as yet undetected, instead of vaccine bodies. The contribution of Ishigami is nevertheless an important one; its results should be confirmed by others and the nature of the vaccine bodies determined.

On reviewing the accounts of the vaccine bodies and the opposing views as to their interpretation, a marked similarity with the history of the so-called protozoa of cancer is evident. In cancer and in the lesions produced by the virus of smallpox, the structures described as parasites appear in the epithelial cells and there many details of morphology and tinctorial reactions common to both. In both cases there is a small body of enthusiastic supporters of the protozoan character of the suspected parasites.

OCCASIONAL DIAGNOSTIC DIFFICULTIES IN SURGERY.

Some weeks ago[3] we commented on the unfortunate outcome of an operation which illustrated some of the unavoidable diagnostic errors in surgery. Since then

1. See Editorial in THE JOURNAL, xxxvii, 1466.

2. Centralbl. f. Bakt., etc., 1902, xxxi, 794.

3. THE JOURNAL A. M. A., Oct. 25, 1902.

the case has been reported in full,[2] showing in much stronger light the difficulties under which the operator must labor and the misleading character of the symptoms in certain cases.

In this case the patient had on a former occasion accidentally swallowed his false teeth, and was positive that he had done the same again. It seemed almost certain that he did swallow them, but unconsciously relieved himself in his efforts, and then continued to struggle with his hyoid, the external cornua of which he could touch, believing it to be the plate he had swallowed, thus severely lacerating his throat. The obstruction became complete, only rectal feeding was permissible, and the inflammation extended to the air passages, necessitating an emergency tracheotomy. The diagnosis was misled by the skiagram in which a calcification of the aorta caused a shadow resembling the plate; this and the seriousness of the symptoms, all out of relation to the local operative traumatism, rendered operation imperative. Only after it had proved the absence of the foreign body did the family abandon their opinion and renewed search reveal the missing teeth. Thirteen physicians were familiar with the case, were present at the operation, and none of them questioned the diagnosis. The whole case seems to have been managed with all the cautions that surgical knowledge could suggest, and the fatal outcome, we judge from the report, was probably not hastened or influenced by the operation.

Dr. Crile's paper, referred to above, contains a useful study of the literature of approximately similar cases. A strikingly similar one is that reported by Lund,[3] in which the presence of a supposedly swallowed set of teeth was diagnosed by a lecturer at the Royal College of Surgeons, the cornua of the hyoid being actually felt while the autopsy showed the absence of the plate. The deduction drawn is that neither the sound nor the *x*-rays are infallible aids to diagnosis, and the reported cases show that distinguished surgeons as well as patients have mistaken the hyoid for a tooth plate impacted in the esophagus. Considering the greatly heightened mortality rate of the non-operative treatment of such cases, the urgency of the symptoms in the case reported, entirely apart from the question of the actual presence of the plate and the error of the diagnosis, it does not seem to us that there was any defect of good surgical judgment in the course adopted.

OPERATIVE TREATMENT OF EPILEPSY.

Idiopathic epilepsy was long considered a disease belonging to the field of internal medicine, and is still so considered by many. From time to time, however, enterprising surgeons report results of series of cases subjected to operative treatment with more or less success. In the intervals between such reports some lose sight of the fact that such cases have been treated surgically, and consider the operative treatment of epilepsy something new. Most of the earlier operations found their justification on the basis of animal experimentation. Physiologists have demonstrated that sudden anemia of the brain, such as is produced by ligation of both the carotid arteries and the vertebral arteries simultaneously, will produce an epileptic attack.

On the other hand, there is some experimental basis for the supposition that brain hyperemia produces epilepsy, and a number of surgeons have practiced ligation of the vertebral arteries with the idea of curing epilepsy by preventing brain hyperemia. Among the later operations is resection of the cervical sympathetic ganglion, and since the introduction of this operation the benefit of ligation of the vertebral artery has been attributed to the accidental division of the sympathetic nerve, or nerves, during the operation of ligation. The resection of the cervical sympathetic ganglions prevents sudden occurrence of anemia of the brain by paralyzing the vasomotor constrictor nerves, the nerves which produce contraction of the smaller vessels of the brain. If epileptic attacks have their origin in brain anemia, this operation has at least theoretical justification. Sporadic cases had been reported from time to time, but in 1896 Jonnesco of Bucharest brought the subject prominently before the profession at the Surgical Congress at Paris and reported 97 operations of this kind which he had collected from the literature or personally performed. Jonnesco now maintains that it is necessary to excise all three of the cervical sympathetic ganglions on both sides of the neck. The immediate effect of the operation is to produce hyperemia of the face and conjunctiva, contraction of the pupil and ptosis. The symptoms are usually transitory and no permanent trophic disturbances have been reported. The operation has not been attended by death in any case and the percentage of recoveries in over 200 cases is placed at about 6 per cent. Although this is not brilliant, it is more satisfactory than the treatment of epilepsy by bromids or other medical means, which scarcely yield 2 per cent. of permanent cures. The operation is relatively a new one and its indications are not yet well understood. Possibly, when cases can be better selected, particularly if earlier and less severe cases are taken, the results may be more satisfactory.

Craniectomy has been long recognized as a most satisfactory treatment for all cases of traumatic epilepsy, but few have attributed any value to the operation in idiopathic epilepsy. Kocher has been one of the chief advocates of the operation in idiopathic cases, and reports patients who have been without attacks for over three years. The operation is based on the theory that epileptic attacks are caused by increased intracranial tension with brain hyperemia, and by removing a portion of the skull a safety valve is formed which prevents recurrence of abnormally high intracranial pres-

2. Cleveland Medical Journal, December.
3. Brit. Med. Jour., 1885, I, 1142.

sure. Many investigators, for example Von Bergmann, Dejerine, Bier, Braun and others, hold that the theories with regard to circulatory disturbances are without sufficient foundation and consider operation absolutely unjustifiable.

Our information at present is fragmentary and based on entirely too much theorizing. Possibly some cases may be due to brain anemia, while other cases are the result of brain hyperemia. Further experimental studies along these lines are needed and, it would seem, might yield valuable results.

AN EDITOR'S VALEDICTORY.

Dr. Malcolm Morris publishes his valedictory as editor of the *Practitioner* in the December issue of that journal. We do not know who is the "younger and swifter runner" to whom he resigns his place in medical journalism, but he will have to be a worthy one to fill the place held by Anstie, Brunton and Morris. The *Practitioner* has been one of the brightest as well as one of the most solid and scientific of our British exchanges, and it is to be hoped that it will lose none of its good qualities by its change of editors.

A COMMEMORATION OF LISTER'S WORK.

The issue of the *British Medical Journal* of December 13 is a special Lister number, commemorating the completion of fifty years of medical practice of Lord Lister. The editor has made it a sort of Festschrift, made up of contributions by various eminent followers of Lister's teachings in different countries, Von Bergmann and Mikulicz-Radeski in Germany, Lucas-Championniere of France, Durante of Italy, Bloch of Denmark, together with those of several British surgeons, Ogston, March and Berry Hart. The history of antiseptic surgery as it developed under the initiative of Lister is given by Annandale, Sir Hector Cameron, John Chiene and Watson Cheyne. It is to be regretted that there are no American contributors, for what Lister has done for surgery is nowhere more appreciated than in this country, and nowhere, we believe, are the results more apparent. The editor of the *British Medical Journal* informs us that it was the original plan to have such included, but for some reason or other those who were depended on did not supply them. As it is the number is a pleasant tribute to one of the greatest advancers of surgical technic and success.

JOINT CHANGES IN TABES.

The pathogenesis of the arthropathias is still in doubt. The rôle of trauma, analgesia, neglected rheumatic effusions, rarefaction, epiphyseal separation and bone atrophy as an end result of syphilis are still denied as causative factors by many who look on the condition as induced in some manner by the peculiar and inherent nature of the disease itself. Since the macroscopic, chemic and histologic investigations of Regnard, Féré and Blanchard on the bone changes in tabetics, no one has seriously doubted the importance of these tissue alterations as factors in the arthropathias of this disease. However, the extensive study of Kienböck six years ago on tabetics by means of radiography gave no abnormal picture, neither in the arthropathic joints nor in any of the free articulations of such patients. While this investigation was a surprise to those who believed in the theory of rarefaction and bone atrophy, it failed of conviction in the presence of the more accurate microscopic and chemic studies on tabetic bone which had been previously made. In a review of the contending theories Donath[1] reports two very instructive cases of arthropathia in tabetics. In one, a typical Charcot knee was accompanied by a corresponding enlargement in all the calf muscles. The changes in the soft parts were identical in character and originated from an extension of the effusion and infiltration from the adjacent tabetic joint. The same case showed arthropathia of the elbow joint in which the triceps tendon became calcified apparently on account of immobilization. This fact suggests a practical rule: Do not permit the use of a bandage compress for too long a period as a corrective without active or passive movement of the joint. In the second case the second joint of the index finger, an unusual seat, was involved, together with its tendon (contracture). Both cases were undoubtedly luetic-tabetics and the joint changes were typical of the affection. Radiographic study showed the light shades very well, the existence of which as signs of rarefaction are denied by Kienböck. Donath emphasizes the fact that during the inactivity of the bone atrophy, radiography fails to give a typical picture. In point of fact it does not show itself in an active stage except in those cases which are ultimately fractured; hence the discrepancy in the different radiographic investigations of tabetics. Indeed, they often fail to show positive signs of epiphyseal fracture even with good technic, if rarefaction and decalcification are not great, and if the parts are buried somewhat deeply by soft parts, such as that of the knee and hip. The decalcification of bone which constitutes the predisposition is a nutritional disorder, probably the result of syphilitic endarteritis which hinders a proper blood supply. The author finally gives us the latest summary of the pathogenesis of the condition: A bony change with analgesia, in which spontaneous articular fracture occurs or is induced by slight trauma; such injury because of its painlessness and apparent trivial nature is often overlooked.

Medical News.

ILLINOIS.

For Mattoon Hospital.—Dr. David M. McFall has donated 360 acres of Coles County land to the proposed public hospital at Mattoon.

Anonymous Donor.—A Christmas gift of $1,000 from an unknown donor, to be applied on the outstanding indebtedness of $11,000, has been received by the Evanston Hospital.

Addition to Swedish Hospital.—The new section of the Swedish Hospital, Bowmanville, erected at a cost of $30,000, will increase the capacity of the institution to the extent of 75 patients.

Chairmanship of a County Board.—Dr. William R. Harper has accepted the position tendered him by the president of the county board and will serve as chairman of the advisory board of the Cook County Hospital.

1. "Contribution to Tabetic Arthropathias," by Dr. Julius Donath, Wiener Klinische Rundschau, vol. xvi. No. 43, Oct. 26, 1902.

The Parke Banquet.—The McLean County Medical Society gave a banquet, December 15, in honor of Dr. Charles R. Parke, Bloomington, who after fifty-five years' practice is about to leave Illinois and settle in Kentucky. Dr. Lee Smith acted as toastmaster, and Drs. William Hill, Franklin C. Vanderwort, James B. Taylor and Daniel M. Foster responded to toasts.

Chicago.

No Hospitals on Boulevards.—An ordinance has been passed prohibiting hospitals and infirmaries on boulevards under the control of the west park board.

Physician Reprimanded.—An Englewood physician, who is alleged to have instructed a smallpox patient to go to the health department by way of the street cars, thereby running the risk of exposing others to the disease, was reprimanded by the department for so doing.

Personal.—Dr. William B. Wherry, assistant in the department of pathology and bacteriology at the University of Chicago, who has been appointed pathologist to the Government Laboratory in Manila, Philippine Islands, left for Manila, January 1.——Dr. Warren H. Hunter has been reappointed county physician.——Dr. Otto W. Lewke has been appointed coroner's physician, vice Dr. George Leininger, resigned.

Preponderance of Female Deaths.—The abnormal preponderance of deaths among females, 305, to 293 males, in the week ended December 27, is accounted for by the health department by "the defective street car service, with its frequent breakdowns at a season of the year when thousands of women, at a high pitch of nervous tension over the holiday shopping, have been kept waiting for hours exposed to the inclemencies of the weather."

The Week's Deaths.—The mortality-rate for the week ended December 27 was 17.12 per 1,000 per annum, which compares favorably with 17.98, that of the previous week, but is much higher than that of the corresponding week of last year, which was only 15.03 per 1,000. The preponderant causes of death were pneumonia, 91; heart disease and tuberculosis, each 50; typhoid fever, 39; intestinal diseases, 36; nephritis, 35, and violence, 19.

For Sick and Crippled Children.—At a meeting of physicians and laymen held under the auspices of the Woman's Club, preliminary steps were taken to incorporate a society to provide for adequate establishments for the care of children suffering from contagious diseases, to encourage scientific research as to the best methods for preventing epidemics of these forms of sickness, and to provide for the care of crippled children. Dr. Frank Billings presided, and addresses were made by Drs. John M. Dodson, W. S. Christopher, Arthur R. Reynolds, Ludvig Hektoen, John B. Murphy, A. J. Ochsner and others.

Lemon Juice a Germicide.—The publicity given in the daily press to a cablegram alleging that lemon juice was a powerful germicide, with especial reference to the typhoid bacillus, has led the health department to experiment, with the following preliminary results:

> The following experiment was made in the laboratory to test the value of lemon juice in destroying the typhoid bacilli: One hundred and twenty c.c. of bouillon was inoculated with the *Bacillus typhosis*. The flask was placed in the incubator at 90 degrees for 12 hours. At the end of this period 4 c.c. of lemon juice was added. At the end of four hours plates were inoculated from this flask. The plates at the end of 24 hours showed no growth.

Further investigations will be made, and the department says lemon juice may be recommended as a prophylactic if results prove its value.

KANSAS.

Colleges Not Merged.—The negotiations for the absorption of the Kansas Medical College, Topeka, by Washburn College have fallen through, and an attempt is now being made to affiliate with the state university at Lawrence.

Personal.—Dr. Samuel W. Willison, Lawrence, is now professor of paleontology in the University of Chicago.——Dr. Charles Loomis has moved from Lawrence to Eudora and Dr. John Cahill from Lawrence to Birmingham, Ala.

War Against Unlicensed Practitioners.—The state board of medical examination and registration is waging war against unregistered physicians. J. S. Hamilton, Independence, has been convicted in the Montgomery County District Court, and C. H. J. Jordan, Kansas City, has been prosecuted in the Common Pleas Court of Wyandotte County for illegal practice.

MARYLAND.

Personal.—Dr. George Johnson has left Frederick and will reside hereafter in Florida.

Hospital for Cecil County.—A public meeting looking to the establishment of a county hospital at Elkton was held at that place, December 17. Dr. Charles M. Ellis, Dr. George S. Dare, Dr. Howard Bratton and Dr. John H. Jamar are among the incorporators.

Baltimore.

Prize for Health Department.—The commissioner of health has received from Paris a handsome bronze medal, won by the Baltimore health department for having the best exhibition of health and mortality records shown at the Paris Exhibition in 1900.

Increased Death Rate.—The health department reported a larger death rate last week than for many weeks past. This result is attributed to the epidemic of measles now prevailing and to the large number of cases of pneumonia consequent partly on the measles and partly on the lack of fuel supply. There were 211 deaths—a rate per 1000 of 20.20 per annum. Among the causes of death were pneumonia 40, tuberculosis 23, Bright's disease 18, measles 5. There were 216 new cases of measles reported, 34 of diphtheria and 9 of typhoid fever.

Personal.—Dr. William Osler will read a paper at the one hundredth anniversary of the New Haven Medical Society, January 5.——Dr. Edward N. Brush gave a reception at the Sheppard and Enoch Pratt Hospital, December 15.——Dr. F. O. Rodgers, who has been one of the resident house physicians at St. Joseph's Hospital for the last two years, has left for Concord, N. C. Before his departure he was given a dinner by the house staff.——The venerable Dr. John Morris is very ill at the City Hospital, and no hope is entertained of his recovery.

NEW YORK.

New York City.

Personal.—Dr. Thomas H. Manley was tendered a reception by the profession of Hartford, Conn., December 22.

Christmas in the Hospitals.—Bellevue and the other city hospitals had a red-letter day on Christmas, owing to the liberality, it is said, of Mrs. Cornelius Vanderbilt, who, desiring to show her gratitude for the recovery of her husband from typhoid fever, sent a check for $500, to provide good things for the patients on Christmas.

Bronx Vital Statistics.—The annual report for this borough shows there were 4756 deaths, an annual rate of 29.08 per 1,000, but if the 1,404 deaths of non-residents, for the most part patients in institutions, were excluded, the death rate would be reduced to 13.72, an exceptionally low rate. There were 4,938 births reported, but many births undoubtedly were not reported.

Dr. Lorenz Departs.—Dr. Adolf Lorenz has followed the schedule laid down for him for the past week. Everywhere he has received an ovation. December 26 he dined with the orthopedic section of the New York Academy of Medicine, and following this a reception was given him at the Academy. On Sunday he operated at the New York State Hospital for Crippled Children, Tarrytown. After doing a few more private operations, and being entertained at dinner by Austro-Hungarians, Dr. Lorenz embarked on the *Celtic* for Liverpool December 31.

PENNSYLVANIA.

The Free Hospital for Poor Consumptives, up to December 13, had received contributions amounting to $8,500.

Child Insurance.—John and Emma Williams have recently, by a coroner's jury, been committed to prison to await investigation by the grand jury, charged with the fatal poisoning of their two children. The securing of insurance on the lives of the children is the motive ascribed. This and other suspicious cases of a like character have led to a movement on the part of Insurance Commissioner Durham, and also of reputable insurance companies, to stop the practice of insuring young children. A bill to be presented to the legislature will contain a clause placing the minimum age limit probably at 6 years, and also limiting the amount of insurance that may be taken on a child.

Philadelphia.

Campaign of Vaccination.—Fear is not entertained of an epidemic of smallpox such as occurred a year ago, but, as a precaution, in its determination to avert such an epidemic, the Department of Public Safety will again conduct a campaign of vaccination. Police lieutenants have been ordered to have the patrolmen make a house-to-house canvass, taking a census of persons who have not been successfully vaccinated within the last five years. When the canvass is complete, city vaccine

physicians will call on and vaccinate those who will submit to it.

High Death Rate.—The death rate was high for the week ended December 20, there being 535 deaths, 76 more than in the preceding week, and 103 more than in the corresponding week of 1901. Fifteen new cases of smallpox were reported. Dr. Benjamin Lee, secretary of the State Board of Health, announces that Philadelphia is more free from the contagion of smallpox than any other portion of Pennsylvania. He states that the disease has been worse in Pennsylvania for the past four months than for a corresponding period a year ago; that it is spreading throughout the state, and that because of the lack of funds to fight its spread, the situation is a serious one. For the year ended December 1 there were 5,867 cases of smallpox and 446 deaths within the state. Within November 375 cases, with 66 deaths, occurred, while in the same month of 1901 249 cases and 40 deaths occurred. Comparison of other months shows a like increase.

Personal.—Dr. Thomas L. Coley has been appointed visiting physician to the Methodist Hospital, vice Dr. J. P. Crozer Griffith, resigned.——Dr. Alfred Hand, Jr., has been appointed visiting physician to the Children's Hospital in place of Dr. Frederick A. Packard, deceased.——On December 20, before the American Academy of Political and Social Science, General Leonard A. Wood, U. S. Army, reviewed the military administration of Cuba, dwelling especially on the present condition of the charities, the sanitary provisions, and the public works and finances of the island.——On December 18 Dr. Matthew D. Mann, Buffalo, delivered an address before the Charles B. Penrose Gynecological Society, and was afterward the guest of honor at a reception given by Dr. John G. Clark at the University Club.—On December 17 Dr. Norval H. Pierce, Chicago, read a paper before the Section of Laryngology and Otology of the College of Physicians, and was afterward entertained by Dr. D. Braden Kyle at a smoker and reception at the University Club.

GENERAL.

Cholera Continues in Manila.—Thirty cases a day were being reported a month ago. The death rate throughout the province is still heavy, and the disease is not checked.

Lorenz Tells Profits.—Dr. Adolf Lorenz is reported in the daily press to have said:

> I see it reported that I have made in this country $160,000. Now, as a matter of fact, I got one fee of $30,000 in Chicago, and in the four months I have been here I have earned just $30,000.

Want Clerks in Pension Office.—The commissioner of pensions desires to appoint twenty-five physicians in the next three months, as clerks and copyists in the pension office at salaries of from $900 to $1,000 a year. Only graduates of medical schools will be accepted in the examination, which is to be held January 27.

Want Panama Canal Physician.—The New York Academy of Medicine adopted the following resolutions, Dec. 18, 1902:

Whereas, It is well known that the previous excavations for an Isthmian Canal have been attended with a large amount of illness and a heavy mortality, due mainly to malaria and to yellow fever,

And, Whereas, Recent discoveries as to the causes of these diseases have enabled medical officers to control their ravages to a marked degree;

And, Whereas, The success which has crowned medical efforts in Cuba in apparently abolishing yellow fever, is another evidence for the belief that if proper hygienic precautions are taken at Panama and at other situations along the route of the Canal, the death-rate of the past can be much decreased or made to disappear. It is therefore

Resolved, By the New York Academy of Medicine that in its judgment the amplest powers should be given to the medical officers in charge of the sanitation of the Canal, and that to attain this end a medical officer should be a member of the Commission which the President of the United States is authorized to appoint to conduct the affairs of the proposed Canal.

It Is Furthermore Resolved, That the Secretary of the Academy be instructed to forward this preamble and resolutions, duly signed, to the President of the United States.

CANADA.

Canadian Hospital Tent Adopted by England.—The imperial government has adopted the Canadian hospital tent, which is the joint invention of Surgeon-General Neilson and Mr. Joseph Berry of Ottawa. Lord Kitchener saw the tent in South Africa and was delighted with it.

Personal.—Dr. A. E. Garrow, Montreal, will sail shortly from New York for Germany to spend several months in study. ——Dr. G. A. Charlton, Montreal, has been appointed resident physician of the Ottawa Isolation Hospital, and will enter on the duties of his office early in January.——The professors and lecturers of Bishop's Medical Faculty tendered a dinner at the Windsor Hotel one evening last week to Dr. Casey A. Wood of Chicago, a graduate of that institution, and at one time professor of chemistry and afterward of pathology.

Annual Meeting, National Sanitarium Association.—At the annual meeting of the board of trustees of the National Sanitarium Association, December 20, in Toronto, the report of the physician-in-charge, Dr. J. H. Elliott, for the official year just closed, showed that the past was the most successful year in the five years' history of the institution. During the five years 612 cases have been treated, and Dr. Elliott reported that during the past year 85 per cent. had apparently been cured or the disease arrested, while but 10 per cent. failed to improve. An important announcement was made by the secretary that a third institution was shortly to be erected near Toronto, and a fourth is under consideration to be established on the Pacific Coast.

FOREIGN.

London Fears Typhoid.—An increase in typhoid fever in London is reported. The unsanitary conditions of the city add to the fear of an epidemic.

Plague in Mexico.—Bubonic plague is said to have appeared at La Paz, Guaymas, Mulje and Mazatlan, all on the Pacific coast of Mexico. A score were reported dead December 22 and many were dying daily. A government commission is making an investigation as to the identity of the disease. Quarantine is being observed.

Leprosy in Norway.—The official statistics state that the number of lepers in Norway has fallen from 688 to 577 since 1895. Of the 533 in the three lepers' asylums, 187 have died, and 45 have been dismissed. The average duration of the disease was 18.2 years; for the form with nodules only 12.2, and for the nervous form 26.6.

Munich Vital Statistics to Be Dropped.—The local medical business organization at Munich petitioned to have postage supplied for the vital statistics sent in by physicians. As this request was denied, the physicians unanimously decided to abandon the task of supplying the statistics of morbidity, commencing with the New Year. At the same time they announce that they are ready to resume the task if the authorities should become convinced of the value of well kept vitality statistics sufficiently to bear the expenses.

LONDON LETTER.

Memorial to the Late Professor Virchow.

An inaugural meeting to promote in this country the memorial to the late Professor Virchow has been held under the presidency of Lord Lister. He said he thought that, as a rule, monuments to the departed should be made, if at all, by the nation which gave them birth, but there were exceptions, as in the case of Pasteur, whose work had benefited all mankind, and so with Virchow. A committee was formed of men of eminence.

Digestion in Plants.

Professor S. H. Vines has made some exceedingly interesting investigations into the digestion of plants. A year ago he gave the Linnean Society an account of some observations on the action of the enzyme, which not only possesses the property of peptonizing the higher proteids (e. g., fibrin), but also decomposes the proteid molecule into non-proteid nitrogenous substances, such as leucin. Since then he has investigated several other plants: Pineapple juice, cocoanut milk, melon, cucumber, tomato, marrow, grapes, pears, oranges, bananas, leaves of lettuce, green peas, onions, potatoes, cabbages, mushrooms, and turnips, and found them to be proteolytic.

The Plague.

INDIA.—During the three weeks ending October 18, 25 and November 1, the deaths from plague in India numbered 10,730, 10,494, and 8,915, respectively. Precautions are being taken against the inroad of plague on Delhi during the approaching durbar, and a large medical staff has been appointed to the inspection of stations on the railways leading to the city. With each surgeon a lady doctor has been wisely appointed to assist in the inspection. Extensive inoculation against plague has been temporarily suspended in the Punjab, as the imperial laboratory is incapable of supplying the requisite quantity of serum. It is stated that 10 persons have died in consequence of the serum with which they were inoculated being contaminated. The contamination was due to the changes suggested by the plague commission in the methods of preparation. Meantime the operations of prophylactic inoculation are suspended pending the preparation of an adequate quantity of a reliable serum.

EGYPT.—During the week ending November 16 one fresh case of plague was reported.

CAPE OF GOOD HOPE.—No case of plague in Cape Colony during the week ending November 1, the colony has been entirely free from plague since September 25, when the last patient died at Port Elizabeth. As late, however, as October 31 plague-infected rats were found at Port Elizabeth,

MAURITIUS.—During the weeks ending November 13, 20 and 27 the number of fresh cases of plague amounted to 23, 30 and 17, respectively, and the deaths from the disease to 14, 21 and 12.

PARIS LETTER.

Vallas' Report on the Treatment of Tetanus.

A most interesting report on the treatment of tetanus was made by Dr. Vallas of Lyons at the Congress of Surgery held in Paris a few weeks ago. He showed how the experiments of Carles and Rattone demonstrated the infectious nature of the disease, how Nicolaïer and Kitasato isolated the pin-shaped microbe, and showed that it was found in the earth.

In 1890, six years after the discovery of the microbe, the toxin was isolated by Faber, and later Vaillard showed that other microbes helped the bacillus, and that in ordinary conditions phagocytosis was a sufficient protection. Three methods of treating tetanus were to be considered: the classical treatment, that by the serum Behring-Kitasato, and Baccelli's method of carbolic acid injections. The first consisted in complete isolation and silence, and the use of large doses of chloral, as much as 10 or 12 grams being given in 24 hours. Amputation was permissible when the condition of the limb as the result of an accident might seem to plead for such a course.

The Behring-Kitasato treatment was discovered in 1890, and three different forms of serum are now employed, Behring's, Roux and Vaillard's, and Tizzoni's, which is a dry extract which is treated with water before being injected. Behring's method is used to determine the strength of a given serum and the unit consists in the amount needed to immunize a gram of white mouse against a fatal dose of toxin. The serum is not antitetanic, but antitoxic, so that it does not destroy the microbe, a fact which shows the importance of treating the wound most thoroughly. The preventive value of the serum was demonstrated by Nocard in 1895. 375 animals which were likely to take tetanus on account of a wound were inoculated and not one was affected by the disease, whereas 55 cases were seen among animals which were not injected.

In 1897 the same experiment was carried out on a larger scale, and 2727 horses were treated in this manner, and not one was affected with tetanus; 259 cases of tetanus were seen at the same time by the same veterinary surgeons. The result of this is that, as Dr. Landouzy has said, to wait for the onset of tetanus in a suspicious case is a mistake, and it is a rule to act when there is any possibility of infection. An injection should be made the first, third and tenth days. If the wound is not healed, it is well to make still another injection of 10 cubic centimeters. When tetanus has set in, the serum is not at all as efficacious. Kitasato lost his first case, but Tizzoni had eight successes out of 8 cases. In 1893 Roux and Vaillard had already 7 cases, with 5 deaths. There is one fact, which has been clearly demonstrated, it is that the injections are quite harmless. Dr. Vallas has been able to collect 373 cases, with the following results: Incubation of 10 days: 141 cases, with 80 deaths, which makes a percentage of 57 per cent. Incubation of more than 10 days: 118 cases with 24 deaths, or 20 per cent. Incubation not determined: 114 cases, with 41 deaths, or 36 per cent. These figures show that out of a total of 373 cases there were 145 deaths, or 39 per cent. Lockjaw is just as pernicious as ever in infants, and in women during the puerperium. If one compares this with the mortality seen in former days, 70 per cent., one is obliged to admit that there has been a noticeable improvement; 30 to 40 grams should be injected daily, until there has been a noticeable change.

There is a case on record of a negro who took 1800 grams. Intravenous injections have been found very useful in certain cases, and seem devoid of danger. As for intracerebral injections Dr. Vallas does not favor them at all. Baccelli's method consists in the daily injection of 30 to 40 centigrams of carbolic acid, in a 2 to 3 per cent. solution or a 10 per cent. solution in oil. This treatment, which has been applied more especially in Italy in some 80 cases, has been followed by a cure in all but 8 cases. Opotherapy, as formulated by Wassermann and Takaki, does not seem to be justified by the experiments carried out in the laboratory. As for peroxid of hydrogen, and persulphate of soda, the results following the use of these drugs are good, but the number of cases is very small.

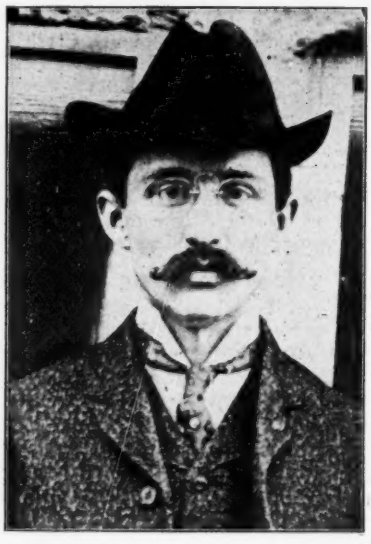
Steiner has furnished statistics showing how the different serums have worked, and it would seem that the number of cures was greater in Germany and America, which may be due to the serum being used in lighter cases. In the discussion that followed Dr. Lucas Championnière said he considered intracerebral injections as quite innocuous, amputation was useless, and preventive injections had stopped an epidemic in his service some wears ago. Other physicians felt that this method was not to be absolutely condemned. Dr. Schwartz of Paris had 8 cases of lockjaw in his service from 1890 to 1898, and with an equal number of cases since then which were injected, he had only two cases, one who came in with the first symptoms already apparent, and the other who had not been injected.

Correspondence.

An Escaped Criminal Wanted.

DENVER, COLO., Dec. 22, 1902.

To the Editor:—Inclosed please find photograph of one of the rankest medical impostors that I ever heard of. His right name is Edward Rietzel and his parents live at 92 Crystal St., Chicago. In 1891 he was convicted under the name of Fox for grand larceny and sent to the Reformatory at Pontiac. He was let out on parole and next was heard of in Niles City,



Mich., in connection with the so-called St. Luke's Hospital of that place, where he assumed the name of Dr. Geo. A. Elliott, having stolen the diploma of Dr. Geo. A. Elliott of Leamington, Ont., who graduated in 1896 from the Medical Department of the University of Toronto.

At that time this bogus Elliott had a wife by the name of Adele Cornely, who was a graduate of a Swiss College of midwifery. Before going to Niles City he went under the names of Ralston and Ruleson. From Michigan he was next heard of in Kansas City, Kan., where he ran an abortion shop in the guise of a gynecologic hospital. Early in this year he presented this genuine diploma to our board and soon after began his nefarious practice in this city. In a little while he and his wife Adele Cornely were arrested by the federal authorities for sending abortion literature through the mails. She forfeited her bond and is now in Geneva, Switzerland, and it is believed that her arrest was a scheme on his part to get rid of her, he not thinking he would put his foot in it as well.

Between the 15th and 20th of February, 1902, he married again to one Mary Kaurin of Chicago. What became of her I do not know. In July of this year he was married to one Dr. Mary E. Inman, who claims to be a graduate of the Boston School of Medicine. The dean of this school writes that no one by that name ever graduated from his institution. In October he lost an abortion case by sepsis and hemorrhages, and was arrested under the charges of committing abortion and murder.

He was released on a $5,000 bail which he forfeited, having gone to parts unknown.

In the interest of the profession I beg of you to use this data and photograph in publishing an article in THE JOURNAL that may assist in his recapture. I may further add that the first thing that aroused my suspicion that he was not a graduate of the University of Toronto was his making application to the State Eclectic Medical Association, which was very queer if he belonged to a regular school.

I received a letter to-day in which it is stated that Dr. Egan has knowledge of this man's Chicago record, and you may be able to get direct from him some additional facts.

Thanking you in advance for extending me the courtesy of publishing this man. Very truly yours,

E. D. VAN METER,
Secretary Colorado State Board of Medical Examiners.

NOTE.—The Chief of Police of Denver furnishes the following data: Age, 29; height, 5 ft. 6 in.; weight, 136; dark complexion, hair and eyes; teeth good; German nationality; he may have his mustache off; he is with a woman who he says is his wife; wanted for murder at Denver.

A Side Light on Ethics.

To the Editor:—Apropos of the Code of Medical Ethics recently published in THE JOURNAL, it has occurred to me that we are very foolishly shutting our eyes and closing our ears to the low standard of ethics practiced by the medical profession in America to-day. This is an age of commercialism. It has planted itself as firmly in the profession of medicine as in the department stores. This commercialism is a menace to the high standing of our medical men; it handicaps the good we might do for humanity; the reform we might accomplish; the respect we might command. Year by year the standard of ethics and ideals is lowered. At present we stand almost at the head of the list, in the eyes of the world, of professional jealousies. The musician and the medical man rank side by side in their bickering and in their enviousness. Newspaper men and the laity in general recognize it and laugh good-naturedly at our expense.

The public know, in a vague way, that there is an indefinable thing called medical ethics. They envelope it with the mysticism that the uninitiated envelope the masonic rite. They know that the profession regards the physician who advertises in the advertising columns of the daily papers as a quack, but that if a man have sufficient reputation he may insinuate his name with impunity in the main body of the newspaper—this they understand is immeasurably more delicate, and certainly tells in a more clever fashion, while the "small fry" dare not be so bold as to resort to either of these methods. The laity, accordingly, are fairly settled in the belief that the unpardonable sin is for the professional man to insert his ad. among the advertisements, and they thus differentiate between the man of reputation and the quack by the part of the paper in which his name appears. When the public comes in personal contact with many of our profession who are in good standing and with the successful "smooth quack" they are too frequently unable to detect any difference in their conduct.

I think I express the sentiments of the average medical man when I say that the recent graduate very soon takes on one of the characteristics of an animal called a bulldog. When that animal gets a bone, by chance or otherwise, if there is good meat on it he shows his teeth at the approach of another dog, and stands ready to fight for his rights. I am not a pessimist. It is my good fortune to have been associated in consultation, with few exceptions, with men who were ethical to a degree. I may add that when I have the privilege, I choose my consultant with as much care as though I were selecting a lawyer to defend me against a charge of murder in the first degree.

It is easy enough for the man of means, and of some social prestige to adhere to most of the Code of Ethics. But what of the man who starts his professional life with a wife, perhaps a young family, and a small bank account? Can he afford to be ethical in the face of an empty pantry, and scanty clothing? How many of us are strong enough to do unto others as we would be done by, when, as David Harum says, the other fellows are doing us, and doing us first. What incentive is there for the young specialist to keep faith with his Code, when men who have risen to the very top of the ladder in their respective lines are flagrant violaters of the essentials of medical ethics?

May I illustrate a case in point: For the past few years I have been the family physician in a certain household. After urgent persuasion I gained the mother's consent to make a local examination for a persistent and suspicious hemorrhage from the uterus, with the result that I unhesitatingly declared she be sent to the hospital, and after more thorough investigation probably submit to a hysterectomy for cancer. The family were quite satisfied until a near relative insisted on consultation with a noted surgeon who had performed an operation on a sister. The surgeon in question stands in the very front rank of our profession. I called him up by telephone and explained the situation. I agreed to have him see my patient at the hospital he desired, and at a time to suit his convenience. After we had finished our consultation, my consultant, without asking my permission, called the family together, gave his diagnosis, his treatment, and his prognosis. He then proceeded to set the time for operation, and graciously invited me to be present as an on-looker if I so chose. However, as the invitation was suggestive of my being asked to officiate at my own funeral, I did not go. Previous to the consultation the husband of my patient had asked what my charges would be if I did the operation. He was worth from $25,000 to $50,000, but knowing the family's tendency to "nearness" I felt I must be modest if I were able to keep my bone. I answered "one hundred dollars!" The husband shook his head. "This big surgeon my sister wants us to call in would not charge me as much as that." I learned afterward that my consultant of large fame actually did the operation—hysterectomy—for $40.

I mention this case because it is typical of the point I wish to bring out. My consultant is a good man. His alma mater is proud of him, so is his state, so is his country—so am I for the advances he has made in surgery. He is an honor to his profession. He is one of the men whom an esteemed French confrère had in mind when he wrote me enthusiastically: "I have visited every great medical center in the world, and I have never yet seen the equal of your surgical clinics in Chicago. It is magnificent—the material, and the men you have to operate on it." My consultant is an overworked man; he has more operations than he can do. Patients wait their turn for him. He was not tempted to take my case away from me, nor unwilling to share the honors, if there were to be any, of the result of the operation, because he was in need of money. He is not a grasping man; his fee of forty dollars would give the lie to such an accusation. It is said he stood at the head of his class in the average of his studies, but he certainly was never compelled to take an examination in medical ethics. He is too busy now to think about such a trifling thing as ethics. He may have seen the word written somewhere. He may possibly glance over the Association's revision of the Code, but it will never occur to him during his eminently successful and busy career to drink of the spirit of these rules and regulations. He is too old to learn. Hundreds of men will continue to witness his operations and to learn what they may from him, but if they have good sense, they will avoid him assiduously as a consultant. Meanwhile he will unconsciously continue, day after day, to go on with the gentle art of dampening the youthful ardor of the enthusiast who leaves his alma mater with high ideals and ethical aspirations. He will make these men smile at the mention of Flint on Ethics, and have thoughts unfit for publication when he reads "Of the duties of the physician in regard to consultations."

In Article I, Section 2, the revision of the Code admonishes the physician to "entertain a due respect for those seniors who, by their labors, have contributed to its advancement." Be assured the younger man will never fail in veneration for his senior, if the latter is worthy of it. The ethical man of reputation will ever have bestowed on him his due—and more.

The discourtesy existing in many of our medical societies in America is proverbial, and so rough is the abuse at times, and so unwarrantable the insults, that many a man who would

gladly give his little to "enrich the science" with some new thought or experience, shrinks from a public encounter with his medical associates. Allow me to detail another personal experience. At the suggestion and invitation of a most ethical consultant, I presented, a few months ago at one of the medical societies, a simple apparatus for the convenience of putting up, at right angles, a fractured leg of an infant. The history of my case in brief was this: After a difficult and tedious labor in a primipara, aggravated by a breech presentation, I delivered my patient of a living eight-pound child. As a last resort, when the anesthetic had to be stopped on account of a very rapid pulse, and a threatened cessation of respiration, I used the blunt hook. Stimulants were given hypodermatically, and artificial respiration was being performed while I made one last attempt to deliver the child with the aid of that instrument. I succeeded, and at the same time fractured the upper third of the thigh during the process. Fortunately, the mother and child made a good recovery. At my request the parents consented to bring their babe to the medical society on the evening that I was to exhibit my apparatus. I gave a brief outline of the case from the *time of fracture*, merely mentioning that the accident had occurred from the use of the blunt hook during delivery. I exhibited the *x*-ray photograph of the broken fragments of the femur, the little apparatus that had served its purpose so well, the various photographs of the infant while in the fracture bed, and the undeformed child. As soon as I had finished my remarks, and while the baby, held in the mother's arms, was being exhibited, one of the most noted members of the society sprang to his feet and began to denounce, in very scathing terms, my use of the blunt hook. Under the most favorable circumstances the discussion of the use of the blunt hook was hardly in order. The man criticising me knew nothing of the emergency of the obstetrical case. Moreover, I came there solely for the purpose of presenting a simple and effectual means of suspending the fractured leg at right angles, and in the hope that even the little I had to offer might serve its purpose of "enriching the science," no matter how insignificant that enrichment might be. No words can express my consternation at the sudden turn of events, especially when the tirade of criticism directed against me was made in the presence of my small patient's mother and father. Up to this time the family had considered me, like Tommy Sandys, "a wonder!" But here was a revelation for them. I was caught red-handed in an unscientific and unpardonable error—had I conducted my case properly I would not have broken their baby's leg. It is hardly necessary to add, that I am not, at present writing, their family physician. The episode in the medical society may or may not be entirely responsible for their change of doctors. Be that as it may, I should certainly feel much easier if I were ever to exhibit another patient before the same society, if the individual were deaf, dumb and blind.

The point I wish to emphasize is this: The doctor who "called me down" before my patient was a thoughtless man. If he reads this article he will probably not remember the incident. He had never met me personally, either before nor since. There was no malice, no evil intent, and I doubt if the majority of men present at that meeting gave the incident even a passing thought, so little would such a gross breach of ethics attract attention at the present time. But I ask in the name of all that is lofty in medicine, what an effect such an affair would have on a young fellow who had just started out in his practice, and who could not see how he was going to get money enough together to buy a winter overcoat. A young fellow, who, by the loss of that one family and the everlasting harm they could do him—if they so had a mind, was compelled to give up the weary fight, and perhaps accept a position offered him by a chemical house as traveling salesman. I ask in all fairness why there should not be adequate punishment meted out to such men—no matter whether the blunder be of thoughtlessness or malice. Younger men must have protection from these onslaughts if it is expected of them to "entertain a due respect for those seniors, who by their labors, have contributed to its advancement."

Article IV, Section 4, says that "Consultations should be promoted in difficult cases, as they give rise to confidence and more enlarged views in practice." Theoretically, this is a fact. But I speak for the younger, struggling practitioner when I say I know in a great number of cases that if the physician in charge be in any degree a sensitive man, he is a moral coward when it comes to consultations. This is especially so if he is not personally acquainted with his consultant. Too often, on his senior's arrival, he waits breathlessly for—whatever damage this man who has made his mark in the world, may see fit to deal him. We all realize the fact that it is not the rule for the consultant to be careful not to walk into the sick-room first. He frequently begins to examine the patient at once. He practically ignores the attending man, proceeds to interview the family, gives his diagnosis, prognosis and treatment, and finally leaves behind him doubts in the family, and a lack of confidence in their attending man. He not rarely does more harm than good.

Before we attain as high a regard in the eyes of the public as we have ambition for, we must set about casting these motes from our eyes. The older and more experienced man must never withhold a helping hand to the beginner. He must guide, protect, advise him, as he would his own son. He who reaches the summit of his profession must step on the center of the platform, with the lime-light full on him. He may err with impunity, he may have his weaknesses, his foibles as before he gained his fame, but he must never be found wanting in that sentiment which underlies and permeates the Golden Rule. Medical ethics after all, are simply the embodiment of that rule, and it must be the religion of the medical man. Not until our profession has been delivered from the chaotic state of its present ethics can we hope to stand together in a body for the good of present and future humanity. And until then it is a waste of space to insert Article II on the "Obligations of the Public to the Physician." We have no right to ask the public to respect us when we do not respect each other. We must turn out from our colleges as indispensable qualifications, men who are ethical to a degree. A majority of us today must turn over a new leaf in our attitude toward each other. We must pull up the commercialism, root and branch, that is eating into our vitals like a cancer. We must never be too busy, too overworked, too successful, to do unto others as we would wish them to do unto us.

Granted that the public should be enlightened so that they may more truly appreciate the difference between the spurious and the trustworthy qualifications of the medical man, be it also demanded that they be taught the law of medical ethics. They should be able to detect the unethical consultant as quickly as the physician in charge. They should be taught to respect these ethics. And they should also be taught that the consultant who transgresses upon this Code is not the man to whom they owe obligations, consideration, or respect.

As an ethical body, in spite of our multitudinous differences, we can join hands. We can aid in repressing wrongs, physical and moral. We can successfully establish reformations. Isms, false sciences, charlatanism, will gradually die out from lack of patronage. There will be no limit to our potency for good.

I venture the statement that I can send one of my patients on whom I have recently performed an abdominal section, the rounds, in alphabetical order, to the physicians whose names appear in the Blue-Book, or official directory, that she can go to each one of these men with a like tale—e. g., that she has recently undergone an operation by me, that she is no better, that she doubts as to whether I was honest with her in what I said I did, that she would like to be examined and have them give her their opinion as to the nature of the operation I performed. Barring some of the men who know me personally, I think I do not exaggerate when I say that 3 per cent. only might ask if I had been paid and discharged from the case. I doubt if it would occur to 2 per cent. to find out if I were a physician in good standing, or if they had a telephone in their office, take the trouble to call me up before proceeding to grab my bone because I was not looking—especially if there were any meat on it in the shape of currency.

When such a state of affairs exists, I can readily believe that many of the men who read our revised Code, may think it worthy of emanating from the pen of our Mark Twain, and con-

sider its fitness to be entered for a prize in the contest of the "Funniest thing I have ever read."

This is a busy, busy world, and so long as we, as a body, adopt the present method of business for personal gain, no matter at whose cost, let us not be so cowardly as to ask the public for any more consideration than they give to other business men. We are no better nor no worse than the rest of tradesmen. Our religion is his religion: "Every man for himself and the devil for us all."

If we are not content with the present condition of affairs, we must begin at the very beginning. We must impress on the applicant for admission to our medical schools, that something more is required of him than his fee, and satisfactory credentials as to his literary attainments. He must be capable of comprehending and appreciating the sentiments and essentials of the Golden Rule. As a freshman, while vivid conceptions are made on his mind, he should receive a short but impressive course of lectures on medical ethics, and he should be examined on these lectures at the close of his freshman year, and he should not be allowed to continue with the remainder of his studies until he had passed a high per cent. in ethics. This should be continued during the remainder of the prescribed years of his college course. The strictest ethical conduct should be observed between professors and instructors. When a patient is sent from one department to another, or from one clinic to another, or from one college to another, the ethics of the man or men in charge should be above reproach and of such a nature as to impress every student present. If there is the slightest chance of the patient having been attended by some physician and a previous diagnosis having been made, the last man whom the patient appeals to must withhold his opinion entirely, or at least he must give it in such a manner that the patient can not interpret that there has been a criticism of his previous medical attendant or attendants.

There is a way in which one professional gentleman can disagree with another professional gentleman, or take serious issue with him, which is a source of inspiration to the student, and stimulates him with a healthy desire to hear both sides of the question, and no matter which view appeals strongest to the student's mind, he has a profound respect for both gentlemen. There is a broad-minded, courteous, refined way of differing from another, and there is a sneering, narrow-minded way not unlike the manner in which one butcher runs down another butcher's grade of meat, or his methods of business. We would be more honest with ourselves if we either entirely did away with a Code of Ethics and made no pretense of being ethical, or obeyed it to the letter. We must be a body of professional men with high aims and lofty principle, or we must be a body of first-class, shrewd business men.

We can accomplish the former much-to-be-desired condition of affairs only by educating our men while they are in college, and thus giving them an ethical conscience, as the up-to-date medical man acquires the "aseptic conscience." You can mark the man who has recently taken up the aseptic theory, and the man who has had it drilled into him from the time he was a freshman. It is second nature for the drilled man to hold his clean hands in the air until he is ready to touch the field of operation. He never forgets. He never touches anything that is not sterile. When his hands are cleaned they go as automatically as a soldier salutes when his superior officer passes him. If we would turn out ethical men from our schools we must train them with as much care as we drill them in their technic of asepsis. His ethics must become a part of him—second nature.

The consultant must fully understand that his influence is incalculable either for good or for evil. He must appreciate the fact that he often has it in his power to turn the tide of a young fellow's career. That he is responsible for the bulldog tendency of to-day. It is he who is capable, in a great measure, of inspiring the younger men to live up to the high ideals of their profession, and to be a worthy part of a body of men who can if they will, accomplish more good for humanity than any other profession or factor. On the contrary, he does his part in damning the hard-pushed, recent graduate, until he finally gives up the fight and goes into another business, or worse yet, joins the ever-increasing army of men who have graduated from medical schools in good standing, and who become a menace to society by inserting medical advertisements in which they assure the public of "guarantees" and "sure prevention."

The alumni from every reputable medical college must remember their alma mater with affectionate regard, and they must be made to feel that the men connected with their alma mater are their foster fathers, and if they are deserving, they can depend on them always for encouragement, professional assistance, protection and for ideal consultation. We must add another chair to our medical course, and the man who is at the head of that chair must be possessed of an "ethical conscience."

ROBT. T. GILLMORE, Chicago.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

CINNAMIC ACID IN TUBERCULOSIS.

SCRANTON, PA., Dec. 20, 1902.

To the Editor:—On page 1623, last issue, you refer to the cinnamic acid treatment of tuberculosis and refer to Krause having used Landerer's directions or formula. Will you kindly furnish me with the formula for the intravenous injection of this acid?

E. ZIEGLER BOWER.

ANS.—Landerer's method, as we understand it, is the intravenous injection of sodium cinnamate dissolved in sterile salt solution. He uses 1/10 to 1/3 grain of sodium cinnamate at first and gradually increases the dose until several grains are given at each injection. The literature of the subject is extensive. One of the latest articles is that by Dr. Wm. J. Robinson completed in the December number of *Merck's Archives*. It gives a good bibliography of the subject. Consult also Landerer's book on the subject. We can not inform you where to obtain it.

LEGAL ENTRIES IN ACCOUNT BOOKS.

SAN FRANCISCO, Dec. 16, 1902.

To the Editor:—Do the entries made by conventional signs as explained in visiting lists (such as the visiting list of Blakiston) have a legal validity or what constitutes a legal entry in a visiting list?

GEORGE GROSS, M.D.

ANS.—The laws of states differ. As a general answer: The original entries should be itemized and intelligible, requiring no explanation, at least so far as amounts are concerned, if they are to be used as evidence.

LENGTH OF QUARANTINE IN SCARLET FEVER.

SOUTH DAKOTA, Dec. 13, 1902.

To the Editor:—1. Kindly let me know through the columns of THE JOURNAL if you think a quarantine of ten days sufficient for even the mildest case of scarlet fever.

2. Also give a diagnosis of the following, if you can, from the symptoms. We have had an epidemic and there has been a dispute as to the diagnosis. Fever from 12 to 24 hours, after which a rash develops which is first vesicular, but inside of twenty-four hours some of the pimples become pustular, but the most of them do not develop pus and inside of three or four days they begin to dry up and in a few days more the crusts drop off, leaving a red spot which disappears in a week or ten days. In some of the cases there has been a little sickness of the stomach.

This has been diagnosed variola by some of the physicians, with which diagnosis I can not agree. X.

ANS.—1. A quarantine of ten days is decidedly under the limits. 2. We can not give a diagnosis from the data given.

RECIPROCITY WITH NEW YORK.

WELLSVILLE, N. Y., Dec. 13, 1902.

To the Editor:—Will you kindly inform me through your journal what states acknowledge a New York State license? Will Illinois?

B. A. BARNEY.

ANS.—We believe that no state reciprocates with New York since New York does not recognize the licenses of any other state.

Marriages.

EDWARD E. MOORE, M.D., to Miss Ida Morley, both of Chicago, December 13.

F. S. PECK, M.D., to Mrs. Annie O'Howell, both of Stillwater, Okla., November 26.

NATHANIEL WELSH HICKS, M.D., to Miss Mary Thomas Stroud, both of Florence, S. C., December 3.

FRANK F. NEWELL, M.D., Burlington, Wis., to Miss Gretchen Leis Land of Waukesha, Wis., December 10.

CHARLES FRANCIS READ, M.D., Grand Rapids, Mich., to Miss Ethelwynn Eaton of Beloit, Wis., December 16.

Deaths.

Joseph R. Laine, M.D. University of Buffalo, 1876, a member of the American Medical Association, died at the German Hospital, San Francisco, December 15, from heart disease, after a long illness, aged 56. He first practiced in Peoria, Ill.; then moved to Nebraska, was an acting assistant surgeon in the Army, and later moved to California, residing first at Sacramento and afterward at San Francisco. He was for eight years a member and secretary of the State Board of Health; he was one of the organizers of the College of Physicians and Surgeons, and its president until 1899. He was also lieutenant-colonel and assistant surgeon-general in the National Guard of California.

Jacob M. Kraus, M.D. University of Buffalo, 1889, a member of the Buffalo Academy of Medicine, the New York State Medical Association, and the American Medical Association, died at his home in Buffalo, December 19, after a lingering illness, aged 36. He was a physician of marked ability, and at the time of his death was on the medical staff of the German Hospital, and physician to the Erie County Penitentiary. Resolutions expressive of sorrow and respect were passed by the hospital staff and the societies to which he was affiliated.

John B. Crombie, M.D. University of Maryland, Baltimore, 1883, a member of the American Medical Association and a prominent physician of Allegheny, Pa., was struck by a locomotive and instantly killed, at Allegheny, December 22, aged 45.

Robert H. Moore, M.D. University of Louisiana, New Orleans, 1861, major-surgeon C. S. Army, for 25 years a resident of Hot Springs, Ark., and for six years coroner of Garland County, died at his home, December 15, after a long illness.

Mary Willits, M.D. Woman's Medical College of the New York Infirmary, 1898, first assistant physician at the State Hospital, Norristown, Pa., died at that institution, December 16, from cancer, after an illness of several months.

William P. Armstrong, M.D. University of Louisville (Ky.), 1857, formerly of Terre Haute, Ind., died at Jamestown, Cal., December 16, from heart disease, after an illness of one week, aged 73.

Malcolm Ethan Parrott, M.D. Jefferson Medical College, Philadelphia, 1883, died at his residence in Brooklyn, December 16, from Hodgkin's disease, after a long illness, aged 55.

Alexander Demby, M.D. Long Island College Hospital, Brooklyn, 1899, died at his home in Brooklyn, December 17, from appendicitis complicating typhoid fever, aged 23.

John M. Bowser, M.D. Medical College of Ohio, Cincinnati, 1878, died at his home in Goshen, Ind., December 19, from heart disease, after a short illness, aged 53.

Henry Bauer, M.D. Long Island College Hospital, Brooklyn, 1896, died at his home in Brooklyn, December 18, from meningitis, after an illness of one week, aged 27.

A. Wilber Hoon, M.D. Jefferson Medical College, Philadelphia, 1902, died at his home in Brushton, Pittsburg, Pa., December 16, from erysipelas, aged 25.

William A. Kidd, M.D. Western Reserve University, Cleveland, 1897, died from consumption at his home in Independence, Pa., December 11, after a long illness.

William B. Stevens, M.D. Jefferson Medical College, Philadelphia, 1891, of Nelson, Pa., died at Hartford, Conn., December 11, from Bright's disease, aged 37.

Samuel Daggy, M.D. a surgeon in the Union Army in the Civil War, died at his home in Philadelphia, December 15, from pneumonia, aged 79.

Frederick LeB. Brady, M.D. College of Physicians and Surgeons, New York, 1899, died at his home in New York City, December 20, aged 30.

Oscar F. Seeley, M.D. Rush Medical College, Chicago, 1868, died suddenly from heart disease at his home in Climax, Mich., December 18, aged 72.

Henry N. Jones, M.D. Dartmouth Medical College, Hanover, N. H., 1840, died at his home in Kingston, Mass., December 18, aged 87.

Francis M. Davis, M.D. Texas Medical College and Hospital, Galveston, 1874, died at his home in Houston, Texas, December 16.

John S. Mason, M.D. University of Maryland, 1836, died at his home near Waverly, Sussex County, Va., December 16, aged 85.

J. Knox Barney, M.D. Washington University, St. Louis, 1874, died at his home in Weir City, Kan., December 12, aged 60.

James R. Douglas, M.D. Missouri Medical College, St. Louis, Mo., 1855, died recently at his home in Batchtown, Ill.

Robert W. Armstrong, M.D., died at his home in Baltimore, December 12, from heart disease.

Deaths Abroad.

Prof. Richard von Krafft-Ebing, the eminent psychiatrist of Vienna, died at Graz, December 22. Richard, Baron von Krafft-Ebing, Hofrath and Knight of the Order of Franz Joseph, was born at Mannheim in 1840. Among his masters were Friedreich at Heidelberg and Griesinger at Zurich, and soon after his graduation he was appointed assistant physician at the insane asylum of Illenau. At 32 he became professor of psychiatry at Strassburg, and later at Graz, and in 1889 was called to the same chair at Vienna. His manuals of criminal psychology, psychiatry and forensic psychopathology have passed through numerous editions, and his contributions to the literature are quoted everywhere. The thirtieth anniversary of his career as a professor was celebrated March 11, and a jubilee number of the *Jahrbücher für Psychiatrie und Neurologie* was presented to him, adorned with an exceptionally fine portrait and containing twenty-five articles by Erb, Pick, Wagner, Von Jauregg and others. He delivered his last lecture March 6, as he resigned his post before reaching the age limit, for reasons connected with his health, and settled at Graz. He early recognized that psychiatry was in danger of following a false path, and was successful in leading it to its true place among the other special branches of medicine. To him more than to anyone else, perhaps, we owe the recognition of the close relationship between psychiatry and neuropathology.

Karl Nicoladoni, M.D., the well-known professor of surgery, first at Innsbruck and later at Graz. He was born at Vienna in 1847, and died at Graz, December 4, 1902. One of his first contributions to science was the successful relief of paralytic contractures by transplantation of tendons. His research on the spine in scoliosis is the basis for our knowledge on the subject, and he was also the first to describe the syndrome caused by torsion of the seminal cord, and to suggest orchidopexy. He was the inaugurator of the method of restoring a missing thumb by utilizing the second toe as a substitute.

M. Victorino, M.D., a prominent physician and surgeon of Rio. He was only 47 years old at the time of his death, November 9, but had been professor of surgery at his native city, Bahia, until appointed governor of the state, then senator, and finally vice-president of the republic of Brazil. His works on tropical parasitic affections have been translated into French, etc., and are frequently cited. He was also a prized contributor to the lay as well as to the medical press.

Ernst Bidder, M.D., a prominent physician at St. Petersburg for many years, professor of obstetrics and author of numerous works on this and allied subjects. He was the son of the physiologist, F. Bidder of Dorpat, where he was born in 1839.

Association News.

Rates to New Orleans Meeting.

Mr. Joseph Richardson, chairman of the Southeastern Traffic Association, has sent us Passenger Tariff Circular No. 1646 officially announcing rates for the New Orleans Meeting of the American Medical Association. From this we extract the following;

RULES AND REGULATIONS.

RATES.—One first-class fare for the round trip (minimum rate 50 cents) from all points south of the Ohio and Potomac and east of the Mississippi rivers.

DATES OF SALE.—May 1, 2, 3 and 4, 1903.

TRANSIT AND FINAL LIMITS.—Tickets will be honored for continuous passage in each direction with final limit 10 days from date of sale.

EXTENSION OF FINAL LIMIT.—Provided ticket is deposited in person by the original purchaser with special agent not later than May 12, 1903, and on payment of fee of 50 cents at time of deposit, final limit will be extended to a date not later than May 30, 1903.

The above rate and arrangement are respectfully tendered to connecting lines for basing purpose.

The following railroads are in the Southeastern Traffic Association:

Alabama Great Southern R. R.; Alabama & Vicksburg Ry.; Atlantic Coast Line R. R.; Atlanta, Knoxville & Northern Ry.; Atlantic & Birmingham R. R.; Baltimore & Ohio Southwestern R. R.; Blue Ridge Ry.; Central of Georgia Ry.; Charleston & Western Carolina Ry.; Cincinnati, New Orleans & Texas Pacific Ry.; Florida East Coast Ry.; Frisco System (K. C., M. & B. R. R.); Georgia R. R.; Georgia Southern & Florida Ry.; Illinois Central R. R.; Jacksonville & Southwestern R. R.; Louisville & Nashville R. R.; Macon & Birmingham Ry.; Macon, Dublin & Savannah R. R.; Mobile & Ohio R. R. R.; Nashville, Chattanooga & St. Louis Ry.; New Orleans & Northeastern R. R.; Norfolk & Western Ry.; Richmond, Fredericksburg & Potomac R. R.; Southern Ry.; Tennessee Central R. R.; Tifton, Thomasville & Gulf Ry.; Washington Southern Ry.; Western & Atlantic R. R.; West Point Route (A. & W. P. R. R. & W. Ry. of Alabama); Wrightsville & Tennille R. R.; Yazoo & Mississippi Valley R. R.

The Committee on Scientific Research of the American Medical Association is prepared to receive applications from gentlemen engaged in scientific research bearing on practical medicine or surgery. Five grants of $100 each will be given in support of such investigation. The results of the work in each case must be presented, either in abstract or complete, before one of the sections of the American Medical Association, preferably the Section on Pathology, at the next annual meeting, at New Orleans, May, 1903. All applications should be accompanied by a full statement of the applicant's previous work and training and his present facilities, as well as by a sufficient indication of the proposed or partly completed work to enable the committee to decide on the advisability of making a grant. [Signed] Alfred Stengel, Chairman, 1811 Spruce St., Philadelphia; William Osler, Baltimore; Ludwig Hektoen, Chicago.

Medical Organization.

Conference on Organization.

A meeting of the presidents and secretaries of the Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri and Wisconsin state societies, and others interested in organization, was held at the University Club, Chicago, on the afternoon and evening of December 27. The following were present:

M. L. Harris and E. W. Weis, president and secretary of the Illinois State Medical Society; J. B. Berteling, president of the Indiana State Medical Society; James T. Priestley and V. L. Treynor, president and secretary of the Iowa State Medical Society; A. E. Bulson and A. P. Biddle, president and secretary of the Michigan State Medical Society; J. W. Andrews and Thos. McDavitt, president and secretary of the Minnesota State Medical Society; Woodson Moss, president of the Missouri State Medical Association; J. V. R. Lyman and C. S. Sheldon, president and secretary of the Wisconsin State Medical Society; N. B. Carson, president of the St. Louis Medical Society; W. A. Evans, president of the Chicago (Cook County) Medical Society; Robt. B. Preble, chairman Committee on Organization of the Chicago Medical Society; E. Fletcher Ingals, chairman of the Committee on Reorganization of the Illinois State Medical Society; D. S. Fairchild, chairman of the Committee on Reorganization of the Iowa State Medical Society; Leartus Connor and W. H. Haughey, chairman and secretary of the Council of the Michigan State Medical Society; James H. Reed and A. W. Alvord, Battle Creek, Mich.; H. P. Newman, R. R. Campbell, Harold N. Moyer, E. C. Dudley, C. S. Bacon, E. Wyllys Andrews, J. B. Murphy and others from Chicago and Frank Billings and George H. Simmons, President and Secretary of the American Medical Association.

At the afternoon session, after a brief review by Dr. Simmons of the reorganization of the American Medical Association and the relation of the latter to the state societies, the president of each of the state societies represented in the conference gave an outline of what had already been done in his state and what is to be accomplished in the future.

Faults in the plan of certain of the state societies already reorganized were pointed out and recognized. Four of the states represented reorganized at their annual meetings this year, viz., Illinois, Michigan, Minnesota and Missouri. The plan adopted by the Michigan State Medical Society was shown to be almost ideal. The councilor system, with larger functions than are given in the constitution adopted by the Committee on Organization of the American Medical Association, and endorsed by that body, were especially commended. Indiana, Iowa and Wisconsin will act on the matter of reorganization at the coming meeting.

Dr. N. B. Carson of Missouri, Dr. E. Fletcher Ingals of Illinois, Dr. W. H. Haughey of Michigan and others took part in the discussion in the afternoon session.

The evening session consisted of a banquet, followed by a continuation of the conference. Dr. Billings spoke of the many benefits to be obtained through thorough organization. Dr. Harris showed the advantages of the new plan of organization as regards dues, and emphasized the fact that the dues would be much lower for the individual, and at the same time a larger amount would be realized, because a larger number would contribute.

Dr. Connor discussed the idea of a state society issuing its transactions in monthly journal form, rather than in the old method. He spoke of the practical results in Michigan from its journal which was established five months ago, and urged other state societies to do likewise. He said that the time had come when the members of the medical profession were demanding journals published in their interests, and not solely in the interest of the proprietary medicine men.

Dr. Biddle spoke of the card index system of keeping a record of licensed practitioners. He called attention to its simplicity and effectiveness and how easily the individual's record could be arranged to follow him wherever he might go.

Dr. Simmons especially urged that in the plan of organization adopted in any state the fact should not be lost sight of that one of the objects to provide for is that of obtaining information in regard to every man licensed to practice in every county, so that there shall be no one, whether a member of the organization or not, whose medical history shall not be on file on a card index in the office of either the secretary of the county or of the state society. In combining two or more sparsely settled counties into one society, a vice-president or some officer for each county should be provided for, whose duty it should be to represent and make reports for such county. He also called attention to the great advantage a record of every practitioner would be in preventing the registration of men in a state who had forfeited the right to practice in another state, if the organization co-operated with licensing boards.

Dr. Moyer spoke of the medicolegal, or medical defense function which had been adopted by the Chicago Medical Society. The object is not alone to protect members in malpractice suits, but in other ways to benefit them.

Drs. Evans and Preble talked on organization in large cities, and explained how Cook County—Chicago—had been divided into twelve districts, with a branch society in each district, and these again subdivided for work. Over four hundred new members have already been received in the Chicago Medical Society this winter and it is expected that by the annual meeting the membership will have reached two thousand.

Dr. Carson spoke of the trouble that had prevailed in St. Louis and of the better conditions already developing.

Many others spoke briefly and at nearly midnight the conference adjourned. It is believed that much good will result from this gathering, as a better appreciation of what is being attempted and a better knowledge of how to carry on the work and meet the difficulties was had by all.

Highland County (Ohio) Medical Society.

This society was organized at Hillsboro December 17, through the efforts of the councilor of the district, Dr. Brooks F. Beebe, Cincinnati, and of Dr. John C. Larkin, Hillsboro. There was once a society in this county but it has been dead for at least half a dozen years. Our reporter states that at the meeting for organization there were more physicians present than were ever before gathered in the county. Two-thirds of the regular physicians of the county became members and others who were unable to be present sent word that they would join at the next meeting.

The regular meetings will be held on the first Wednesday in January, April, July and October. The following is a list of the officers for the ensuing year: President, H. A. Beeson, Leesburg; vice-president, H. A. Russ, Hillsboro; secretary, J. C. Larkin, Hillsboro; treasurer, A. H. Beam, Hillsboro; delegate, W. W. Glenn, Hillsboro.

Societies.

Salt Lake County (Utah) Medical Society.—At the annual meeting of this society, held in Salt Lake City, December 8, Dr. Alexander C. Ewing was elected president; Dr. James N. Harrison, vice-president, and Dr. Henry La Motte, secretary, all of Salt Lake City. Dr. Augustus C. Behle, Salt Lake City, was unanimously re-elected secretary.

Iowa Central State Medical Society.—The annual meeting of this society was held in Marshalltown, December 9. The following officers were elected: Dr. Nelson Merrill, Marshalltown, president; Drs. E. W. Jay, St. Anthony, and Harry C. Willett, Whitten, vice-presidents, and Dr. Matthew U. Cheshire, Marshalltown, secretary and treasurer.

New Haven (Conn.) Medical Association.—This association will celebrate the one-hundredth anniversary of its organization, January 5 and 6. Commemorative addresses will be delivered by Drs. William Osler of Baltimore, and Dr. Francis Bacon of New Haven, and a reception will be given in their honor. Tuesday evening the association will have its annual dinner.

North Texas Medical Association.—This society convened for its forty-fourth semi-annual meeting at Dallas, December 9, and continued in session 3 days. Waxahachie was selected as the next place of meeting. Dr. Jarrett T. Benbrook, Rockwall, was elected president; Dr. Charles W. Simpson, Waxahachie, vice-president; Dr. Hugh L. Moore, Van Alstyne, secretary, and Dr. Carey A. Gray, Bonham, treasurer.

Northwestern Ohio Medical Society.—The fifty-eighth annual meeting of this society was held in Findlay, December 11 and 12, with about 300 members in attendance. It was decided to hold the 1903 meeting in Toledo. The following officers were elected: President, Dr. John North, Toledo; vice-presidents, Drs. William B. Van Note, Lima, and Myron J. Ewing, Findlay; secretary, Dr. Albert S. Rudy, Lima, and treasurer, Dr. Theodore M. Gehrett, Deshler.

Medicolegal Society of the District of Columbia.—This society was organized in Washington, December 11. Its principal objects are to promote the enactment of medical legislation in the interests of the citizens of the District of Columbia and the discussion of all civic affairs of a medical and legal character, and to bring about social affiliation among physicians, lawyers, dentists, pharmacists, and veterinary surgeons of the District of Columbia. The election of officers was as follows: President, Dr. Robert Reyburn; vice-president, Dr. William D. Hughes; secretary, Dr. Charles M. Emmons; treasurer, Dr. C. Robinson, and attorney, Edwin Forrest.

BUFFALO ACADEMY OF MEDICINE.

Regular Meeting of the Section on Pathology, held Dec. 16, 1902.

Dr. Irving P. Lyon in the Chair.

Uncinariasis.

DR. CHARLES WARDELL STILES, zoologist to the United States Public Health and Marine-Hospital Service of Washington, D. C., delivered an address, illustrated by stereopticon, "The Prevalence and Geographic Distribution of Hookworm Disease (Uncinariasis) in the United States." He gave a summary of the investigations that have been made and described the different species of the worm.

Having discovered the *Uncinaria Americana*, which differs somewhat in structure from uncinaria in Europe and Asia, Dr. Stiles undertook to determine the geographical distribution of this disease in this country, and accordingly undertook a trip through the southern states. He visited penal institutions, camps, mines, farms, orphan asylums in North Carolina, Virginia, Georgia and Florida, with the result that he was able to satisfactorily demonstrate that such a disease as *Uncinariasis Americana* occurred and could prove the infection by finding the parasite in the stool. The disease produces an anemia, and anemia is usually found in sand areas in the south, due to this parasite. Uncinariasis stands fourth among the prevalent diseases of the south. If the anemia occurs in a clay soil it is due to malaria and where you find a combination of the sand and clay soils you may find both the above-named diseases.

He spoke of the cotton mills of the south as recruiting labor from the farms of the sand areas, so the anemic condition and lack of development of these cotton workers is due not so much to working in the mills as due to a stunted growth due to uncinariasis or malaria before reaching the mills. One-half of the anemias of the south are due to uncinariasis. As to the reason of finding this disease in a sand rather than a clay soil, the feces are deposited in the sand, the embryos are thus deposited, and carried, and secondly, the embryo requires oxygen for its development and gets the oxygen in the sand rather than the clay soil. The hook-worm is known to have lived six years in the intestinal canal, and may live 60 days or longer outside of the body.

Dr. Stiles gave the symptoms of a typical case, and stated that there are all sorts of gradations of the disease. He emphasized the importance of a macroscopic and microscopic examination of feces. In uncinariasis with an ordinary objective, the hook-worm is found in intestinal contents, if in the egg-laying stage the eggs are found. It is not necessary to have much of the feces to make the diagnosis, and either the parasite or eggs are easily found without staining, simply by placing feces between the slide and coverglass. If no eggs or worms are found after examining a dozen specimens it is quite safe to say that uncinariasis does not exist. If by crushing some of the feces on blotting paper a reddish bloody color results 8 out of 10 cases suspected will prove to be uncinariasis.

There is anemia, which may taken on a pernicious form, also eosinophilia. The complexion is waxy white to sallow. In some cases the skin has a yellow tan, and looks not unlike parchment. The mucosa has a marble-white appearance; there are cervical pulsations. The pulse varies from 80 to 132, the average being 120. In some cases there is no temperature, in others the temperature is increased, and it may reach 100. There is a potbelly. Many of the patients look to be pregnant, while the arms and legs are emaciated. The appetite is abnormal; some chew coffee, pickles; some suck lemon, eat salt, sand clay, wood, rags, and one patient ate live mice. There may be constipation or diarrhea. The stools are red or brown, probably due to slight ecchymoses and hemorrhages of the intestinal mucosa.

A symptom noted is that when a patient stares the pupils dilate, and the eye assumes a cadaveric stare, like extreme alcoholic intoxication.

The people are stunted in growth physically and mentally. The penis is small; there is no pubic hair in the male. In females the vulva is small, the sexual organs undeveloped and menstruation is scant.

There may be headache, vertigo, or other nervous manifestations. The disease appears more severe in blondes than brunettes, and also more severe among whites than negroes. Among married women there is a tendency to miscarriages, and it is uncertain whether this is due to the uncinariasis or from the use of large doses of quinin, taken for chronic malaria, with which this condition is universally confounded among southern physicians.

Patients feel better in winter than during the summer months because the eggs and embryos are killed by frost and no new infection can therefore take place.

The treatment consists in thymol, 30 grs. at 8 o'clock a. m., at 10 a. m. another 30 grains, to be followed at noon by salts. It is necessary to prepare the patient by a laxative before using the thymol. It may be required to repeat this treatment from ten to twenty times, and the stools should always be examined.

Dr. Stiles warned against the use of alcoholic solutions of thymol, for it may induce fatal convulsions. This has been proved experimentally in dogs so that thymol is used in the powdered form.

This is a preventable disease. It exists in such localities where little attention is given to the proper disposal of sewage so that a proper disposition of fecal matter is a prophylactic against the spread of the disease. The privy vaults should be boxed and the people must be taught cleanliness, especially the Talmudic dictum of washing the hands before eating.

DISCUSSION.

In answer to a question of Dr. Allen A. Jones as to the value of blood examinations in this condition, the writer stated that

you have the picture of severe anemia. The erythrocytes may be reduced to 800,000, and there is eosinophilia, but he does not depend on blood for diagnosis, comparing this mode of procedure to going from Buffalo to New York by way of San Francisco. The examination of the stool is the method of diagnosis.

DR. ULLMAN asked whether or not there were hemorrhages noted. The writers stated that there are slight oozings from the intestinal mucosa, but that he had never noted severe hemorrhages.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirtieth Annual Meeting, held in New Orleans, Dec. 8 to 12, 1902.

President, Dr. Henry D. Holton, Brattleboro, Vt., in the Chair.

(Continued from Vol. xxxix, p. 1611.)

Sanitary Measures Proposed to the Mexican Railway Companies.

DR. EDUARDO LICEAGA, president of the Superior Board of Health of Mexico, read a paper on this subject. The measures urged were:

1. To increase the number of cuspidors, and furnish them with disinfecting solutions capable of destroying the tubercle bacilli.
2. Place in conspicuous places placards containing the following: "Please spit exclusively in the spittoons, as otherwise the germs of infectious diseases, especially those of tuberculosis, will be carried into the air."
3. Until the paddings of the cars are changed for other and more convenient drapery, a wise plan would be to disinfect the car, every time it is unoccupied, with a solution of formaldehyd, which would not alter the condition of the cloth or its color.
4. Disinfect all sheets and pillow cases before sending them to the laundry.
5. Also disinfect the tapestries and couches.
6. Keep the car as clean as possible, especially the closets and urinals.

The railroad companies in Mexico considered the above suggestions practical and promised to enforce them.

Co-operation Essential to Progress in Vital Statistics.

DR. CRESSY L. WILBUR of Michigan presented a paper in which he said that for the first time there is an opportunity for continued systematic co-operation between the permanently-organized department of the National Government and the various state and municipal systems of registration to the end that accurate and uniform statistics of mortality may be obtained for the United States and made available for the use of all public health offices.

Vital Statistics: A Plea for Actuarial Administration and Control of the Great Resources of Preventive Medicine.

DR. JOHN S. FULTON, Baltimore, said the Federal census should:

1. Be, at the approach of another census year, better than ever prepared to rapidly and accurately count the people, making notes of all the data needed for statistical purposes.
2. It should make such *ad interim* studies of the births and deaths occurring in non-registration areas as would serve for the better correction of the enumerators' returns for the census year.
3. It should commit all vital returns to the hands of a trained medical statistician who understands the moods and tenses of vital mathematics.

Local registration should cover:

(*a*) Records of deaths made at the time and place of their occurrence, by the most competent persons acquainted with the facts, including a medical certification of the cause of death, the making and filing of such a record being, in every instance, an indispensable preliminary to the disposal of the dead body.

(*b*) Records of birth, secured by the payment of fees, by every appeal to private interest and public necessity, including, if possible, conditioning of certain privileges of citizenship on recorded evidence of attained age.

(*c*) Records of marriage and divorce, with all such items of information as had statistical importance.

(*d*) Records of sickness, including all cases those infectious diseases which fell within the provisions of the notification laws, all cases of sickness which came under study in the public health laboratories, all sickness which was relieved at public cost, and all sickness falling under the observation of inspectors of schools, tenements and factories.

The data of vital statistics should be systematically utilized, not only for the broader purposes which had grown into common use, but for the minuter inquiries to which such records in large numbers and of great variety were adapted.

Transmission of Disease.

DR. LOUIS E. RUIZ, Mexico, presented a paper on the periods in which contagious diseases can be transmitted and also of the periods in which sick persons are dangerous to healthy persons near them.

DR. JOSE P. GAYON, Mexico, spoke of the transmission of pathogenic fungi by flies and mosquitoes.

DR. J. E. MONJARAS, Mexico, discussed the principal causes of infectious diseases and the chief means of guarding against them.

At the evening session of the first day, addresses of welcome were delivered by the Mayor of New Orleans, Paul Capdevielle, on behalf of the city, and by Hon. Jared Y. Sanders, speaker of the House of Representatives, on behalf of the state. These addresses were responded to by President Holton.

Presidential Address.

PRESIDENT HENRY D. HOLTON then delivered his address, reviewing the status of sanitation in the United States, saying the most wonderful progress had been made along all sanitary lines.

The association had been striving for many years for the establishment of a public health service, and the medical profession was to be congratulated that at last their efforts had been crowned with success. While all that was desired had not been granted, yet a substantial, and, in many ways, a satisfactory organization had been effected.

Report of Committee on Public Health Legislation.

DR. U. O. B. WINGATE, Milwaukee, Wis., presented this report, which showed the work done toward the formation of the Public Health and Marine-Hospital Service. It was hoped that this measure provides a foundation on which may be built up a National health service, such as the intelligence of the people and the age in which we are living demand.

Experiments in Disinfection with Formaldehyd Gas.

DR. M. P. RAVENEL, Philadelphia, read an exhaustive paper in which he detailed his experimental work with this gas. He drew the following conclusions:

1. Formaldehyd is justly entitled to the high position which has been given to it as a disinfectant.
2. Special apparatus, while useful and convenient, is not absolutely necessary for the successful application of the gas.
3. The germicidal power of formaldehyd gas is dependent on certain factors which, as yet, are imperfectly understood. Other things being equal, moisture and temperature are the most important of these factors.
4. In practice every operation should be controlled by cultural experiment, and no room which has been exposed to infection should be considered as disinfected unless control cultures exposed in various parts of said room are shown to have been destroyed.

Report of Committee on Disinfection and Disinfectants.

DR. HIBERT W. HILL, Boston, said that a careful examination of articles published in America and Europe had failed to reveal the discovery of any new process of disinfection of great practical value during the last year. As to room disinfection, formaldehyd still holds the first place. Gaseous disinfection, he said, as the great panacea for preventing the spread of contagion, has been much discredited by recent experiments, but the committee were strongly of the opinion that, when properly carried out, it was an important and effective aid in public health work, and would continue to be, and that formaldehyd was by far the best agent to use in carrying it out.

In using formaldehyd two things should be provided for: A sufficiency of water in the air of the space to be disinfected and a very rapid disengagement of the gas. Most forms of apparatus failed in one or the other of those points. The work of Robinson and Hill, members of this committee, clearly showed that not only did efficiency depend on them, but by properly observing them much time and material could be saved. The disinfection of the future must be simple, short and sharp.

Report of the Committee on National Leper Homes.

DR. HENRY M. BRACKEN, St. Paul, Minn., chairman, said that of all the countries represented in the association, the United States was the only one that had made no provision for its lepers. With the present knowledge of leprosy, and the methods employed in care of lepers, the committee advised that the resolution of last year be reaffirmed, favoring the establishment of national leprosaria, which might serve not only as a refuge for lepers, but also as a home and hospital, making their

lives tolerable as far as possible, furnishing employment to those who were able to work, and giving skilled medical care to all cases, with the intent of possibly curing some, and making the road to death less wearisome and painful to others.

Dangers to the Public Health from Illuminating and Fuel Gas.

DR. SAMUEL H. DURGIN, Boston, chairman, reported the investigations of the committee appointed on this subject. They found that the common condition of gas pipes and fixtures was very poor, the moderate small leaks very numerous, and that a moderate increase of pressure in the fixtures above the normal produced leakage in 89 per cent. of all the houses examined. It was also shown that the number of fatalities from illuminating gas was not only large, but was increasing from year to year.

In order to ascertain to what extent the medical profession in Boston had recognized cases of acute and chronic poisoning by illuminating gas, he sent out letters to 2200 physicians, asking for their personal experience in such cases. He received replies from 460 physicians; 246 of them reported no experience; the other 214 reported 1025 cases of acute poisoning; 374 of these resulted fatally; 288 were found dead, and 86 lived from one hour to twelve months; 623 made complete recovery in periods varying from a few hours to three years; 28 made partial recovery, while under observation, of from three weeks to twenty-one months.

Annual Report on Yellow Fever in Mexico.

DR. EDUARDO LICEAGA, Mexico, presented statistics of the spread of the disease along the Mexican coast. The recent epidemic in Vera Cruz developed 877 cases, being the most severe in the country. His report showed that 873 cases were on the Gulf coast, while only 27 cases had been reported on the Pacific Ocean coast. The death rate was low, and had been held down by the successful management of the disease.

DR. NARCISCO DEL RIO, Mexico, related with particularity the history of the spread of the disease in Orizaba, Mex.

Yellow Fever Prophylaxis.

DR. JOHN W. ROSS, U. S. A., gave at length his reasons for believing that the only way in nature for yellow fever to be contracted by man was from the mosquito. He recommended the following measures:

1. To prevent those insects from stinging yellow fever patients.
2. To destroy as far as possible the mosquitoes which have been infected.
3. To consider any place unsafe so long as the last mosquitoes which have stung yellow fever patients may be alive in it.

He stated that the clear-cut, scientific observations and classical contributions of Surgeon H. R. Carter of the United States Marine-Hospital Service, showing the interval (about two weeks) which occurred in houses between the first (infecting) case and the first group of cases, secondarily infected, impossible to explain by the theory of fomites, were now readily understood in the light of present knowledge of the elaboration of the yellow fever poison in the body of the mosquito, that process requiring not less than twelve days.

The Method of Transmission of Yellow Fever from Man to Man.

DR. WILLIAM C. GORGAS, U. S. Army, contributed a paper with this title, giving practically the same views that have been published in previous papers on this subject by him.

DR. MANUEL S. IGLESIAS, Mexico, discussed the disinfection of railroad cars as a precautionary measure against the propagation of yellow fever by mosquitoes.

PROF. GEO. E. BEYER, New Orleans, related his investigations regarding yellow fever in Vera Cruz,

DR. EDMOND SOUCHON, New Orleans, did not antagonize the theory of the transmission of yellow fever by mosquitoes, but he did not believe that we were prepared to say that the mosquito was the only mode of transmission of the disease. After a close and careful study of the question, he had reason to believe that there was some other means of transmission. What it was he could not say. It might be fomites, or something we know nothing about.

DR. HAMILTON P. JONES, New Orleans, who was in charge of the Beauregard Yellow Fever Hospital in this city in 1896, said that, despite the fact that three hundred people were exposed to mosquitoes as transmitters of the disease, as well as to fomites, not one of them had been stricken, and he was still in the dark as to the doctrine of transmission of the disease.

DR. JOHN GUITERAS, Havana, explained the prophylactic measures carried out in Havana.

DR. E. R. CARTER of the Marine-Hospital Service said that if the disease was conveyed to an animal host, it was conveyed there by a parasite. He said the conveyance of the disease might occur in two ways by fomites: First, directly to the person, and, second, through an infected atmosphere.

DR. QUITMAN KOHNKE, New Orleans, after mentioning the fact that the board of health was doing all in its power to guard against the disease, said that still more strenuous efforts should be made to keep it from coming to New Orleans from infected ports. If the disease was conveyed by fomites as well as by mosquitoes, it was logical to conclude that there was a greater danger than if it was conveyed alone by the *Stegomyia fasciata*.

Proceedings of the Section on Bacteriology and Chemistry.

The Occurrence of Tubercle Bacilli of Increased Virulence in Man.

DR. M. P. RAVENEL, Philadelphia, stated that it is rare to find tubercle bacilli in man which have a high degree of virulence for experimental animals, if one judge by the published reports, and it is still more rare to find cultures which are highly pathogenic for cattle. So marked was the difference in pathogenic power of cultures isolated from man on the one hand, and from cattle on the other, that a division into races had been proposed depending on this feature; and Koch held that inoculation of a given culture into cattle would surely show whether it was of human or bovine origin. Believing that bovine tuberculosis is a fertile cause of the disease in milk-fed children, he had for some time past taken every opportunity possible of selecting cultures of tubercle bacilli from the mesenteric glands of those who had died of a tuberculosis which was not clearly of respiratory origin. This had led to the discovery of two cultures, one of which was as virulent for all animals on which it had been tested as cultures obtained from cattle usually were; and the other, while not nearly so virulent, was still much in advance of the usual human culture.

DR. F. P. DENNY, Brookline, Mass., read a paper on the morphology of *Bacillus diphtheriæ*, *Bacillus pseudo-diphtheriæ*, and *Bacillus xerosis*, based on the study of serial preparations made at intervals from the same cultures.

The Use of Immune Serum in the Separation of Typhoid and Colon Bacilli.

DR. ADOLPH GEHRMANN, Chicago, read this paper. The difficulty in the separation of these species was due to the constant tendency of *Bacillus coli* to overgrow *Bacillus typhosus*. The search for specific retaining agents had not resulted in entire success. If an immune serum, active for one or the other species could be used to restrain the growth of one, without disturbing the growth of the other, it would be an ideal method of procedure. He related previous experiments along this line. The serum of rabbits immunized against *Bacillus coli* could be used for this purpose and gave results that were positive by artificial mixtures of the two species. The method could be improved by using the blood of immune animals direct and by rapid cultivation in the incubator. For practical purposes this method was not as yet certain and the establishment of a control was difficult. On material containing other species the restraining effect of carbolic acid did not disturb the purpose of the blood that was used. Some rather indefinite results on the isolation of typhoid from water had been reported.

An Examination of the Value of Certain Antiseptics Used for the Preservation of Antitoxin and Other Immune Serums.

DR. JOSEPH MCFARLAND, Philadelphia, said this investigation had for its object the determination of the antiseptic and bactericidal values of chloretone, formaldehyd, chloroform, tricresol and carbolic acid. It had long been believed that the addition of one-half per cent. of carbolic acid and 0.4 per cent.

of tricresol, and 0.1 per cent. of formaldehyd would satisfactorily prevent the growth of micro-organisms in the serums so prepared. As some of these reagents threw down a precipitate, the question arose whether the reagent itself was destroyed and too little remained to properly preserve the serum.

The research was conducted by preparing the serums with the proper proportions of the germicides, then adding known numbers of bacteria and determining their diminution or increase. The results showed that, other things being equal, formaldehyd was preferable to phenol, but objectionable because it did not kill molds. Phenol was better than tricresol, and the recommendation was made that hereafter tricresol be given up as a preservative of the serum.

Formaldehyd.

DR. H. W. HILL, Boston, read this paper. His conclusions were that humidity was an important factor in formaldehyd disinfection. An amount of gas which failed to kill in six hours at 42 per cent. humidity, killed in twenty to forty minutes at 100 per cent. humidity. Considering the unavoidable leaks and absorption of gas by walls, etc., found in practice, practical disinfection required a rapid discharge of gas and high humidity. The best of the generators tested ran not more than 15 c.c. per minute, and the condensed effluent yielded in the first ten minutes only about a 30 per cent. solution, hence generation by boiling in the ordinary way was too slow. Spraying was somewhat objectionable from the wetting down of the contents of the room. Atomization by steam current under 15 pounds pressure yielded from six to eight times as rapid a flow of full strength, with no polymerizing, and produced a high humidity.

The Diminishing Importance of Public Water Supplies and the Consequent Significance of Other Factors in the Causation of Typhoid Fever.

PROF. W. T. SEDGWICK, and MR. C. E. A. WINSLOW, Boston, undertook to show:

1. That in the State of Massachusetts and in many of the larger cities of the United States the public water supplies are now unimportant as vehicles of typhoid fever.
2. That in cities having pure water supplies the annual curve of typhoid fever mortality closely follows that of annual temperature.
3. That in urban communities supplied with pure water there still remains a typhoid fever tax of from 15 to 25 deaths per 100,000 population.
4. That this tax is due not to any peculiar conditions of soil, locality or climate (endemic factors), but to incomplete disinfection of typhoid excreta with subsequent infection of various articles of food and drink. These factors, when acting on a few or many persons at one time, may cause obvious epidemics, sometimes large, though generally small; but more often the infection in moving from one point to another follows different and obscure routes for different victims, and hence may be described as prosodemic.
5. That the only remedies for such prosodemic typhoid are absolutely thorough and universal cleanliness and disinfection of excreta.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Creosote and Guaiacol in Pneumonia.

A correspondent asks for the therapeutic uses of carbonate of creosote, particularly in pneumonia. Creosote and its derivatives have been the subject of much discussion, some reporting them as specific in pneumonia and some considering that they have no effect. They are discussed, both pro and con, in the "Symposium on Pneumonia" in THE JOURNAL, Nov. 15 and 22, 1902. Our correspondent is further referred to the U. S. Dispensatory for a description of the drug in question. The therapeutic uses include tuberculosis, chronic bronchitis, enteritis, ulcerations, intestinal indigestion and various other derangements of the alimentary canal. The carbonate is said to be less irritating and less toxic than creosote. The former is not soluble in water or glycerin, but is soluble in 4 or 5 parts of olive oil or sweet oil, or may be administered in capsule or in the form of an emulsion. It is decomposed in the intestine and is separated into creosote and carbonic acid. It is said to improve the appetite rather than to disturb it. The dose is from 3 to 15 minims, but should not exceed one dram in the twenty-four hours.

Dr. L. Weber of New York and Dr. J. L. Van Zandt of Texas have given very favorable reports of a large number of cases of pneumonia in which creosote carbonate was used. The latter says it may be urged that pneumonia being a self-limited disease, even bad cases will recover; but, on the other hand, good and uncomplicated cases die in spite of the best of care and the so-called symptomatic treatment, because the system does not furnish a sufficiency of serum antitoxins to end the pneumonic process. Unfortunately it can not be told in any case of pneumonia whether Nature will be able to cure the patient. Weber believes that this remedy is able to supply Nature's deficiency, working, as it does, in a very similar way to the antitoxins furnished by the system.

Dr. E. Fletcher Ingals favors the use of guaiacol applied externally rather than the use of the creosote preparations by internal medication. He states that it is rapidly absorbed, and consequently the prompt and beneficial effects are produced without any disturbance to the digestive tract. He advises its application externally in doses of 20 or 30 minims whenever the temperature reaches 101.5 F. and repeated every three or four hours if the temperature indicates it. Different areas should be chosen at each application.

Aborting a Venereal Bubo.

The following, according to an article in *Merck's Archives*, has been used successfully in aborting venereal buboes:

℞. Ung. hydrarg.
Ung. belladonnæ
Ichthyol
Lanolini, āā 3ii 8

M. Ft. unguentum. Sig.: Apply locally. If the bubo is seen early, no heat or redness being present, a piece of surgical lint spread with ointment is applied to the swollen gland; over this a piece of oiled silk of the same size. A piece of cotton is then applied, and firm, continuous pressure applied by means of a bandage. This treatment is applied every other day until, in cases in which it acts successfully, entire resolution takes place, usually in about two weeks. Or the following ointment may be used:

℞. Emplas. hydrargyri
Emplas. plumbi, āā 3iv 16
Olei terebinthinæ 3i 4
Ichthyol 3ii 8

M. Sig.: Applied locally.

The following is recommended as an injection to prevent suppuration:

℞. Hydrarg. benzoatis .....gr. v |30
Sodii chloridi .....gr. iiss |15
Aquæ destil. .....℥i 30

M. Sig.: As an injection.

Eucalyptus in Diabetes.

Faulds, in *Glasgow Med. Jour.*, has employed with success an infusion of eucalyptus in the treatment of diabetes as follows:

℞. Eucalyptus flores (dried) 3iv 16
Aquæ .....℥vi 180

M. Fiat infusum. Sig.: One such draught to be taken twice daily. He states that he obtained good results in fifteen out of sixteen cases. In one case, a girl of 18, in which there were sixty grains of sugar to the ounce of urine passed, after four days' treatment only one grain to the ounce was passed, and on the sixth day none. He, however, thinks it of service only in those cases due to gout, overindulgence in food, or cold. It does not seem to be of service in those cases dependent on vasomotor disturbance affecting the blood supply to the hepatic cells as no improvement was shown in those cases. Eucalyptus oil or eucalyptol will not produce the same results as the infusion.

Massage in Nephritis.

Ekgren, in an abstract in *Med. Rev.*, states that active exercise increases the percentage of albumin in nephritis, and is,

therefore, contra-indicated. Demonstrations on cases of both the interstitial and parenchymatous forms of nephritis showed that passive movement and general massage were equally harmful, as they were followed by considerable increase in the quantity of albumin. The practice of treating renal anasarca by massage, according to the author, should be abandoned or applied only in exceptional cases.

Psoriasis.

Sherwell, in *Jour. of Cutaneous and Genito-Urinary Diseases*, recommends the following outline of treatment of psoriasis:

℞.	Quininæ sulph.	gr. xxx	2
	Mag. sulph.	ʒi	30
	Acidi sulph. dil.	ʒiii	12
	Tinct. nucis vom.	ʒss	2
	Vini colchici	ʒiiiss	14
	Glycerini	ʒiss	45
	Aquæ	ʒii	60

M. Sig.: One dessertspoonful night and morning in a wineglassful of water, half a glass of water to be drunk directly after.

The following to be applied locally:

℞.	Liq. carbonis detergentis	ʒiii	12
	Acidi salicylici	gr. xv-xxx	1-2
	Ung. aq. rosæ	ʒxi	44

M. Sig.: Apply locally night and morning.

Fissure of the Hands.

The following is recommended by Steffen in *Bul. Gen. de Ther.* as an ointment in the treatment of fissures of the hands:

℞.	Menthol	gr. xx	1 30
	Salol		
	Olei olivæ, āā	ʒss	2
	Lanolini	ʒii	60

M. To be applied twice a day.

J. Nevins Hyde employs the following for cracked and chapped hands:

℞.	Tinct. benzoini	ʒiss	45
	Tinct. tolutani	m. lxxv	5
	Glycerini	ʒss	15
	Spts. vini rect.	ʒiii	90
	Aq. rosæ q. s. ad	ʒvi	180

M. Sig.: Wash the hands thoroughly in warm water and apply locally night and morning.

Alopecia.

The following formulæ are credited to Balzer in *Amer. Med.*, to be employed in the treatment of alopecia areata in preference to epilation to stop the progress of the disease:

℞.	Hydrarg. bichlor.	gr. iii	20
	Acidi acetici	m. xv	1
	Alcoholis, 90 per cent.	ʒiii	90
	Spts. etheris		
	Spts. lavendulæ, āā	ʒiv	120

M. Sig.: Cut the hair. Wash the scalp once daily with the foregoing solution.

To re-establish the function of the hair follicles and the atrophied papillæ the following lotions should be used:

℞.	Res. ammoniaci	gr. lxxv	5
	Spts. terebinthinæ	ʒvi	24
	Camphorated alcohol	ʒiv	120

M. Sig.: Apply locally; or:

℞.	Acidi acetici	gtt. xv-lxxv	1-5
	Chloral hydratis	gr. lxxv	5
	Spts. etheris	ʒvi	24

M. Sig.: Apply locally; or:

℞.	Acidi lactici	ʒii	8
	Alcoholis (90 per cent.)	ʒi	30

M. Sig.: To be applied by means of a tampon of absorbent cotton and friction employed until the skin is reddened. If too much irritation is produced the treatment should be withheld for a time.

Diphtheria.

Dr. N. Novikov, according to *Amer. Med.*, states that the use of hydrogen dioxid, to the exclusion of all other medication, in the treatment of diphtheria, gives results equally as encouraging as serumtherapy. The false membrane is detached more slowly than by the serum, but the depressant action of the diphtheritic toxin is neutralized to a great extent by the hydrogen dioxid which favors oxidation. The author instructs the patient to use two or three tablespoonfuls of a 2 or 3 per cent. solution to a glass of water as a gargle night and morning. In children too young to gargle he prescribes the peroxid to be taken internally, as follows:

℞.	Sol. hydroglini peroxid	ʒi-ii	4-8
	Syr. simplicis	ʒiv	16
	Aq. destil.	ʒiii	90

M. Sig.: One teaspoonful to a dessertspoonful every hour or two.

In order to hasten the detachment of false membrane, the throat may be painted with a 2 or 3 per cent. solution three times a day.

Hydrogen Peroxid in Poisoning from Coal Gas.

Hydrogen peroxid is recommended by *Merck's Archives* in the treatment of coal gas poisoning, administered per rectum and per os. It is given in doses of two ounces (60.) full strength, per rectum; per os one ounce (30.). This dose may be frequently repeated. The success of the treatment of course depends on the absorption of the oxygen from the solution by the blood current. A piece of ice inserted into the rectum is a great adjuvant and has a remarkable effect in restoring consciousness.

Chronic Bright's Disease.

The following combination is recommended by Semmola as a drink in chronic Bright's disease:

℞.	Sodii chloridi	ʒiss	6
	Sodii phos.	ʒss	2
	Sodii iodidi	gr. xv	1
	Aquæ puræ	ʒxxxvi	1080

M. Sig.: Use pure as a drink or mixed with milk.

Medicolegal.

Registration of Physicians in Missouri.—The Court of Appeals at Kansas City, Mo., says, in the case of State vs. Morgan, that the laws of 1874 required all practicing physicians to register, and when registered they were thereafter qualified to practice. No law since that enactment has required them to again register. In regulating the practice of medicine, in 1877, the legislature exempted those who were then authorized to practice by virtue of any existing law. Laws 1877, page 343, section 1. In a subsequent regulation, in 1883, the provisions then enacted were made non-applicable to physicians who had been practicing five years. Laws 1883, page 116, section 11. The act of 1883 continued in force down to 1901, when a new regulation was made by the legislature. But it was therein provided that it should only apply to "any person not now a registered physician." Laws 1901, page 207, section 1. The competency of a physician to practice medicine under the act of 1874 has, therefore, not been interfered with by subsequent regulations.

Care Required to Prevent Aggravation of Injury.—The Court of Civil Appeals of Texas says, in Texas & Pacific Railway Company vs. McKenzie, a personal injury case brought by the latter party, that, to prevent aggravation of the injury, the party injured is only required to use such care and caution as an ordinarily prudent person would use under similar circumstances. The aggravation of a wound by unskilful treatment would not of itself prevent the recovery of damages by reason of such aggravations, unless the injured person failed to use ordinary care to prevent such aggravation. When a personal injury flows from the negligent act of another, that other is responsible for the damages resulting, and all that the law demands of the injured party is to use ordinary care to avert further injury. Here, if the company negligently caused the injury, then it was responsible for the damages that proximately resulted therefrom. Whether it was responsible for the aggravation, if any, caused by a failure of prompt attention or unskilled treatment, depended on the care used by the injured party to have the injury properly treated.

Allows But One Physical Examination.—The second appellate division of the Supreme Court of New York says, in Whitaker vs. Staten Island Midland Railroad Company, that it is true that the statute of that state which provides that on application the physical examination of a party seeking to recover for personal injuries may be ordered contemplates the appointment of a physician by the court, but where the party sued has waived this right and a physician of his own nomination has been permitted to examine the other party, and has testified without objection, he may not properly discard such testimony, and ask the court to permit an entirely new examination. The provisions of the Code of Civil Procedure in reference to examinations before trial were intended as an extension of the privileges of parties sued in actions for personal injuries, but the rule is well settled that a party may waive a rule of law, or a statute, or even a constitutional provision enacted for his benefit or protection, where it is exclusively a matter of private right, and no considerations of public morals are involved, and, having done so, he can not subsequently invoke its protection. So the court is of the opinion that the railroad company sued, having once waived the right to an examination by a physician appointed under the order of the court, could not take advantage of the provisions of Section 873 of the Code providing for examinations as above stated. The general purpose of the enactment, it says, was to change a rule of the common law, and it ought not to be extended beyond the clearly expressed intention of the legislature, which, while not expressly limiting the examination to a single occasion, makes no provision for more than one examination, and this is before trial. Again, it says that it appeared that the principal claim of the party suing was that the injuries had resulted in traumatic neurasthenia; and says that this was a matter which might be determined quite as accurately from the testimony which must be brought out on the part of the party suing and her witnesses under cross-examination as by any mere physical examination four or five years after the accident. The company had had all of the advantages of the provisions of Section 873, and it had, by accepting a physical examination under the stipulation of the party suing, waived any right to have another physician appointed by the court for the same purpose.

Current Medical Literature.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal, December 20, 1902.

1 *Endometritis. H. J. Boldt.
2 *Laryngectomy for Malignant Disease. (Concluded.) Frank Hartley.
3 *Gynecologic Massage. Bernard S. Talmey.
4 *Alexander's Operation. Le Roy Broun.
5 Report of the Clinic of Prof. Adolf Lorenz, Held at the Hospital for the Ruptured and Crippled on Dec. 15, 1902. Dexter D. Ashley and Leonard W. Ely.

1.—See THE JOURNAL, xxxix, p. 1411.

2. **Laryngectomy.**—In the earlier part of his article Hartley described total laryngectomy, and here he remarks that a complete unilateral laryngectomy is done in the same manner except that the operative work is confined to one side. In the less extensive cases it may be done subperichondrally. In all cases a tracheotomy is made at the second or third rings, and the cricoid cartilage is saved, if possible. The wound remaining is closed as far as possible by the mucous membrane of the pharynx and the remainder is packed as in resections. In all other details the measures adopted in the resections are applied to the partial laryngectomy. For three days the patient is kept in bed with the foot raised without a pillow, and nourishment given by the rectum every sixth hour, and rectal irrigations with salt solution every third hour. On the third day an attempt to swallow is made—at first of water only, taken in the mouth in the exaggerated Trendelenburg posture, that is, swallowing "up hill." If the wound is not closed some leakage will occur, but this can be overcome by compressing the sides of the opening with the fingers. If this can not be done, or if the wound could not be closed at the time of the operation, a catheter should be used, best inserted through the nose. It is preferable to avoid the use of the catheter, however. He thinks that unless lymphatic involvement contraindicates operation, unilateral or bilateral removal is justifiable. He does not speak with favor of the establishment of an artificial larynx as there is a remarkable adaptation of organs to replace the function of the lost ones in these cases. He reports five cases of these operations.

3. **Gynecologic Massage.**—Talmey reviews the objections and advantages of gynecologic massage. He thinks it is indicated in every case in which pressure on any part of the internal genitals causes sudden and perhaps persistent pain. It is indicated in all cases where it is desired to help Nature improve the circulation by absorption of the products of exudation and increase the tonicity of the tissues, and it will do away with the necessity of many hysterectomies, dilatations, curettements, and oöphorectomies. The dangerous operations for retroflexion will also be avoided, and the ovaries that otherwise might have been sacrificed be saved. He gives details which we can not here reproduce.

4. **Alexander's Operation.**—Broun prefers Alexander's operation in suitable conditions for the following reasons:

1. The relief it affords patients from symptoms on account of which they seek counsel.
2. The danger is *nil*, and the operation of far less gravity than other surgical means in use for the relief of the same symptoms.
3. The anatomical result obtained is all that can be desired, and is effected without the establishment of new pathological adhesions, the intentional formation of which form the basis of all vaginal fixations or ventral suspensions.
4. That the much-heralded danger of inguinal hernia as following this operation is greatly exaggerated, provided the operation is properly done, without laceration of the surrounding tissues in a long continued search for the ligament. If such laceration has taken place, hernia is impossible, if the operator (recognizing the possibility of such) continues his incision to the internal ring and does a Bassini operation, which does not prevent his shortening the ligaments at the same time.

American Medicine (Philadelphia), December 20, 1902.

6 *Failures in the Irrigation Treatment of Gonorrhea. Ferd. C. Valentine.
7 *The Home Modification of Milk for Infant Feeding. Alfred Hand, Jr.
8 Preliminary Note on Ring-shaped Bodies (Nuclear Remains?) Occurring in the Red Cells in Cases of Anemia. Richard C. Cabot.
9 *On the Relation of Obesity to Improcreance. Heinrich Stern.
10 *The Practical Side of Electrothermic Hemostasis. Andrew J. Downes.
11 *A Report of Tuberculin as a Means of Diagnosis. J. D. Madison.
12 The Business Phase of Our Daily Work. I. N. Pickett.
13 Tettenhamer on Eosinophiles. Edward T. Williams.

6. **Irrigation Treatment of Gonorrhea.**—Valentine notices the various causes of failure of this method. Among them the possible idiosynerasy of the physician. Not every doctor is qualified to treat genito-urinary cases, but he does not consider this as against him. He admits he has himself an abhorrence for obstetrics and gynecology and a great dread of treating children's diseases, and would consider himself unfit for such work. He notes the time required as an objection, but that is not a valid one. Also the need of employing irrigating solutions to suit the case; permanganate is not a panacea for all. The patient may be rebellious or unable to carry out the treatment. He mentions a method and apparatus for autoirrigation, which has been described elsewhere. Among the congenital defects which may interfere is a very tight preputial orifice, which may require circumcision or incision, or narrow meatus, intraurethral abnormalities, epispadias and hypospadias. Among the acquired complications are balanitis and balanoposthitis, chancre, chancroid, cicatrices, condylomas, herpes progenitalis, infiltrations, paraphimosis, phimosis, prostatitis, stricture, etc. Phosphaturia and oxyluria may exist, which must be overcome before an effect from irrigation can be expected. These, he thinks, are the principal causes for the failures that occur in the irrigation treatment of gonorrhea.

7. **Infant Feeding.**—The first point in infant feeding is to get a careful personal history of the case from birth, the second, to get a good clean milk, the third point is to get the proportion of fat according to the percentage of fat, proteids, and sugar in the different ingredients; that is, to think in percentages. Hand began by using Meigs' mixture, equal parts of milk, cream, barley water and limewater. He shows how by simple calculation, the sugar, fat and proteid can be modified

from this, by reducing the cream, milk, etc., or adding sugar as required. If the child does not show a weekly gain in weight we should see if the feeding is being carried out as directed. He believes in the use of barley water as a diluent, except in cases where constipation exists, and then oatmeal water is to be preferred. Cane sugar, a pinch of salt, and a tablespoonful of limewater should be added to each feeding. With patients three months old and upward he aims to have the proteid at least 1.75 per cent., and increases it as rapidly as the child can digest it. Infants under three months require careful handling, both as regards proteids and fat, and to tone up the digestion he uses a little sodium bicarbonate in compound infusion of gentian before each meal in some of these cases.

9. **Obesity and Improcreance.**—Stern notes the increase of obesity with decline of sex function, and reviews the causative factors. The abnormal conditions called out by the loss of the sexual stimulus and non-performance of sexual functions, preventing the expenditure of body material, may tend to obesity. In the female organism the possible participation of the surplus blood after the menopause in nutrition is also suggested, or the apparently discrepant condition of the diminution of tissue oxidation and decrease of the red blood corpuscles. There is a lessened degree of intensity of vital processes in the castrated, and in the beginning of the menopausal period, and reviewing the possible factors we find that they all depend on diminished intra-organic oxidation. There is little doubt that the sexual glands, particularly the ovaries, have other functions than those so well known to us, and while we know nothing definite about this it is very possible that their loss may cause chronic disturbances of nutrition, of which obesity is one of the most important.

10. **Electrothermic Hemostasis.**—Downes describes and illustrates the forms of the electrothermic angiotribe and details their purposes. By the electrothermic methods of hemostasis there is elimination of all the handling required in the preparation of the ligature and the operation of ligation. Further advantages are the bloodless nature of the operations, and the closing of lymphatic vessels. He has had no secondary hemorrhage in one hundred operations, unless, perhaps, in one or two cases where there has been too little heat and too short an application. The hemostased track that does not bleed immediately on section gives him no concern. He thinks the method is specially applicable to hospitals, and it is of value in oöphorectomy, appendectomy, or occlusion of the small arteries for which he has devised a special type of instruments, for hemorrhoidal operations, etc. He cites two hysterectomies for cancer performed within a month, in neither case of which was any ligation used. In conclusion he calls attention to the following points, which should be borne in mind by those not accustomed to the method:

The pressing surface of the blades must be smeared with sterile oil before each application. The field should be dried and freed from blood and the surrounding tissues protected from the outer surface of the blades. After each removal of the blades from a hemostased track all charred adhering blood must be removed from their surfaces. Too short an application should be avoided. No error is committed if the time is half a minute longer than required. It should be distinctly understood that the term cauterized does not apply to the method of hemostasis by electrically heated pressure instruments. To cauterize is to burn. In this process we cook the compressed ribbon of tissue, a vastly different thing from burning it.

11. **Tuberculin in Diagnosis.**—Madison has employed tuberculin in over five hundred cases, taking the temperature every four hours for three to five days before the first injection. The injection was given at 8 p. m., and for the next twenty-four hours the temperature was taken every two hours. If there was no reaction from the first injection, a second one was given three days later, and after this the temperature taken for three days or longer if desirable. In a short time the routine was adopted of giving a first dose of 4 mg., followed if necessary by 7 mg., as the maximum dose. Koch's original tuberculin was used. A .5 per cent. carbolic acid solution was usually made up so that each c.c. contained 2 mg. of tuberculin. The solution was made up every three to five days and kept in a cool, dark place. A rise of 2 degrees F. during the following twenty-four hours was considered a temperature reaction, and in many cases the reaction was determined wholly by the temperature chart. He reports some eight cases, and he finds that the test has a certain percentage of failures, and reaction may occur in healed cases or cases that are not tuberculous. His conclusions are given as follows:

1. Patients may react to tuberculin and no evidence of tuberculosis be found at autopsy.
2. The six cases following seem to demonstrate that completely healed tuberculosis may react.
3. Cases of proved tuberculosis may not react to the maximum doses.
4. The evidence is not conclusive that other diseases than tuberculosis may react to tuberculin.
5. The margin of error of the tuberculin test is considerable and probably not less than 10 per cent.
6. The maximum dose should be higher than 4 mg., and not more than 10 mg. Small increasing doses are not advisable, as the reaction is not so likely to be distinct on account of the tolerance which may be produced. An initial dose of 3 to 5 mg. followed by the maximum dose is better.
7. The temperature should usually be normal before injections are given. When the temperature is distinctly above normal a negative result is of no value, as these patients will frequently not respond at all, even to large doses.
8. It seems quite certain that the glycerin extract of tuberculin deteriorates, and a fresh bottle should frequently be opened, care being taken to keep it in a cool, dark place. The .5 per cent. carbolic acid solution should be made up on the day it is used if possible. I believe that deterioration of tuberculin is the principal factor in producing delayed reactions.
9. It can not be said that tuberculin injections are entirely without ill effects, but their use among suitable patients is no more dangerous than the use of chloroform and ether for diagnostic purposes and is quite as justifiable as an early diagnosis of tuberculosis is of the greatest importance.
10. About 40 per cent. of all female patients admitted to the hospital react to tuberculin.

Medical News (N. Y.), December 20, 1902.

14 *The Scientific Aspect of Modern Medicine. Frederic S. Lee.
15 *Acute Pancreatitis; with the Report of Three Cases. George Woolsey.
16 *Rubella Scarlatinosa. Frederick C. Curtis and Henry L. K. Shaw.
17 Some Observations in the Children's Hospitals of London and Paris. Linneus La Fétra.
18 Impressions of the Non-heredity of Acquired Characters. Lewis S. Blackwell.

14. **Scientific Aspect of Modern Medicine.**—Lee reviews the conception of vitality (which he considers has been a hindrance to the progress of medicine), the cell doctrine, the rise of bacteriology, modern surgery, modern germ theory of disease, progress of preventive medicine, serumtherapy, internal secretion, brain surgery, new physical chemistry, medical education, etc. He thinks the future of scientific medicine lies with the university, and that the ideal medical school will be an important department, and on a basis more nearly parallel with that of the non-professional schools of the university at the present time.

15. **Acute Pancreatitis.**—The varieties of pancreatitis with their special features are noted by Woolsey, who remarks that in the three cases here reported there is little to suggest the etiology, except that alcohol in two was an important factor, probably by causing gastroduodenal catarrh. The symptoms in all were much alike. There was sudden onset with more or less collapse, general prostration, severe and cramp-like epigastric pains, not relieved by vomiting, abdominal distension and irregular temperature. There was some abdominal rigidity and tenderness, but no mass could be palpated. In only one of the cases was there obstinate constipation simulating intestinal obstruction, which is not infrequently observed in this disease and may lead to errors of diagnosis. Glucose in the urine was present in Case 3, and helped in the diagnosis; fat in the stools was not observed in any. The diagnosis is always difficult and uncertain on account of the variety of inconstant and contradictory symptoms. In the first one of the cases reported the diagnosis was made only after the operation, and in the second a probable diagnosis was made on account of the recent occurrence within a week of the first case. Case 3 was diagnosed by a group of typical symptoms combined with alcoholic history and glycosuria. It is generally admitted that operation must be avoided in the early stages of collapse. The treatment resolves itself into that of peritonitis commencing in the superior abdominal region, and usually anterior incision, but Robson recommends in addition, or as a substitute if the diagnosis is made, a posterior incision in the left costo-vertebral angle. The prognosis is grave, but varies with the severity and form of the acute inflammation. The hemorrhagic cases are worst, the necrotic

form next, if not fully as bad. In the variety here described he was able to save the patients, though the good results in his three would not apply to a large number of other cases. Recovery without operation is probably impossible, though two cases have been reported after spontaneous evacuation through the bowels. The abdomen was opened and drainage used in his three cases, with recovery.

16. **Rubella Scarlatinosa.**—Curtis and Shaw report an epidemic of about 200 cases, which was described in THE JOURNAL, Aug. 30, 1902, p. 492, as "fourth disease." They point out the differences between these cases and scarlet fever, and consider that this outbreak was rubella, and not at all a distinct disease.

Medical Record (N. Y.), December 20, 1902.

19 *The Systemic or Constitutional Character of Gonorrhea; Illustrated by Five Cases of Iridochoroiditis. Charles S. Bull.
20 A Case of Angina Pectoris, with Autopsy. Beverley Robinson.
21 *A Case of Typhoid Spine. Leonard W. Ely.
22 *A Study of the Indication for Nephropexy. Augustin H. Goelet.
23 Observations on German Therapeutics. Simon Baruch.
24 Instructions to Patients Affected with Syphilis and Gonorrhea. Follen Cabot.
25 Congenital Absence of Pectoral Muscles. Charles V. Burke.

19. **Gonorrhea.**—The increasing evidence of the constitutional character of gonorrheal infection is noticed by Bull, who believes the gonococcus penetrates the general system, both by the blood vessels and the lymphatics. He remarks that instances of sudden loss of sight in patients affected with septic endocarditis which had been attributed to embolism, have been more recently explained by obliteration of the retinal vessels by gonococcal infection. If the aorta and heart can be attacked by the gonococcus, it is natural to conclude that retinal thromboses can be due to the same cause. As regards gonorrheal rheumatism, the facts are not so corroborative of the constitutional character of the disease. The arthritis has not been so definitely proven to be a localized product of general infection, but we have more positive evidence of the dependence on sysmatic iritis and choroiditis and the plastic character is less gonorrhea. It develops more rapidly than the ordinary rheumatic iritis and choroiditis and the plastic character is less pronounced. It is an uncommon complication; though obstinate and subject to frequent relapses it invariably subsides and usually leaves little or no traces behind it. He illustrates his views with five cases reported in detail of iridochoroiditis due to gonorrheal poisoning.

21. **Typhoid Spine.**—Ely details a case which he has had exceptional opportunities to observe. He remarks that there has been little contributed to the pathologic condition since Gibney's first case. It is quite possible that there is the same analogy between typhoid spine and Pott's disease as there is between typhoid pneumonia and tuberculous pneumonia. One tends to the acute course and comparatively rapid recovery, and the other to a more chronic course and breaking down of tissue. He feels certain that it is an osteitis, probably combined with periosteitis. In the case reported it is reasonable to assume inflammation first affecting one region that subsided there, and then attacked adjacent regions of the spine. Neuritis was caused by the inflammation of the bone and of the periosteum, and probably one or more of the spinal articulations were involved. Ely remarks on the bad manners of the Germans in giving little attention to the original authority in regard to the disease. He gives a brief analysis of the symptoms from the cases reported. The prognosis is good. All authorities, except Osler, agree that the treatment is rest—the more complete the better. The recumbent posture is the best, perhaps in a plaster-of-paris bed, with later a spinal brace or plaster-of-paris jacket. Local treatment, like massage, electricity, heat and cold and so on may be of use.

22.—See abstract in THE JOURNAL, XXXIX, p. 1205.

Philadelphia Medical Journal, December 20, 1902.

26 A Case of Adiposis Dolorosa, with Involvement of the Joints. F. X. Dercum.
27 *Bronchitis and Bronchopneumonia from Inhalation of Irritant. J. N. Hall.
28 *Polypi in the Nasal Accessory Cavities; with Specimens. A. R. Solenberger.
29 *Rare Forms of Localized Posterior Staphylomata in Myopic Eyes. Burton K. Chance.
30 A Method of Treatment for the Proper Drainage of Tears in Derangements of the Lachrymal Apparatus. J. Winter Wamsley.
31 A Note on the Employment of the Hanging-drop Method in the Study of Hemoprecipitins. A. Robin.

27. **Irritative Bronchitis from Inhalation.**—A number of cases of irritative bronchitis due to chloroform, gas, sulphur gas, formaldehyd, etc., have been recently observed by Hall, and he reports several. In no case, however, was there any autopsy. Fumigators and others are warned to avoid the irritating fumes.

28. **Nasal Polypi.**—The pathology of nasal polypi is held by Solenberger to be due to irritation, usually from necrotic bone. He does not affirm that this is invariably the cause; some polypi may originate in the mucosa and some in the lower layer of the periosteum along the lining membrane of the cavities, but most of the polypi in the cases he reports seemed to grow from bone necrosis.

29. **Localized Posterior Staphylomata in Myopia.**—Seven cases are reported by Chance. Their characteristics are sharply circumscribed areas, depressed beyond the level of the surrounding fundus, as shown by the difference of refraction. The ectasiæ are composed only of sclera, which has a pearly luster, with here and there on the surface thin grayish pigmentations, much resembling those of cases of true coloboma of the choroid, rather than the dense collections seen after colloid atrophy. The disc margins are hazy, the optic disc seems to be tilted toward the ectasis, the central depression and also the vessels as they emerge trent toward it and appear to dip to a deeper level, which they surmount when they approach the opposite side in the nasal vessels. The arteries are thinner in caliber than the veins, while the color of the venous currents is decidedly deeper than that noticed in the vessels distributed in other regions, and the capillaries are more numerous. The temporal vessels run either to the nasal edge of the disc or beyond the margin, and then turn back sharply to be distributed to the temporal portion of the fundus. In the cases of ectasis localized to the inferior border of the disc, a relatively similar anatomic arrangement was noticed. All the eyes have been highly myopic, with scarcely any other defects of structure, and although the macular regions have been unaffected, the corrected visual power is much less than the normal. In each of the instances reported the patient was intelligent and carefully noted the ocular symptoms. He thinks they are instances of true staphylomata of congenital origin and not expressions of the changes taking place during the progress of increasing myopia.

Boston Medical and Surgical Journal, December 18, 1902.

32 *A Method of Staining Sputum for Bacteriological Examination. William H. Smith.
33 *Eleven Acute and Eighteen Chronic Cases of Influenza. Frederick T. Lord.
34 *Congenital Anomalies of the Phalanges, with Report of Cases Studied by Skiagraphy. (Concluded.) F. B. Lund.
35 Ependymal Epithelium as a Constituent of a Teratoma. Henry A. Christian.

Cincinnati Lancet-Clinic, December 20, 1902.

36 The Ups and Downs of a Physician's Life. (Continued.) George J. Monroe.
37 Surgery of the Prostate, Pancreas and Diaphragm. (Continued.) B. Merrill Ricketts.

32. **Sputum Staining.**—The method recommended by Smith requires the following solutions:

Anilin oil gentian violet. IKI solution, iodin 1, potassium iodid 2, water 300. Saturated aqueous solution of eosin. Loeffler's alkaline methylene blue. Alcohol, 95 per cent., 4 parts, ether 6 parts. Ninety-five per cent. alcohol, absolute alcohol, xylol.

The best results are obtained when the stains are fresh. The specimen should be examined as soon after it has been raised as possible, as standing favors the growth of bacteria. No carbolic acid or corrosive sublimate solution should have been added to the specimen.

As thin a cover glass preparation as possible should be made from the sputum, by means of a sterile platinum loop. This is more essential if it is at all bloody, as is so frequently the case in pneumococcus pneumonia. Fix the preparation in the ordinary way, by passing two or three times through the flame. Cover the specimen, thus fixed, with anilin oil gentian violet, holding it well above the flame, and allow it to steam. Avoid burning.

Wash off the excess of anilin oil gentian violet with IKI solution; cover with IKI solution, and allow to steam as before. Decolorize as much as possible with 95 per cent. alcohol. Wash a few seconds in alcohol ether solution. Wash in water. Stain a few seconds in saturated aqueous solution of eosin. Wash off excess of eosin with Loeffler's blue; cover with Loeffler's blue, steaming as before.

Decolorize slightly with 95 per cent. alcohol; wash in absolute alcohol; follow with xylol; mount in Canada balsam, and examine with an oil immersion lens.

The appearance of the stained specimen is given. Leucocytes, lymphocytes, and other cells take the eosin stain, as well as the red blood corpuscles, the nuclei staining with Loeffler's blue. Eosinophiles appear as in stained blood preparations. Gram staining organisms appear black or deep violet, while Gram decolorizing bacteria take the Loeffler's blue stain. Capsules about organisms, when present, are stained by the eosin, as are ciliæ. He advises the first staining of the specimen in the routine examination for tubercle bacilli to be by one of the usual methods, and to note whether the leucocytes contain numerous minute bacilli. If such are present, they may be influenza bacilli. If no tubercle bacilli are found after several cover glasses have been examined, stain another specimen as above described, noting the following points: The number and staining reaction of the organisms present; the abundance or otherwise of the leucocytes, and whether they are phagocytic; the frequency or rarity of the occurrence of blood globules, and the presence of pigment cells, ciliated epithelial cells and eosinophiles. He remarks that the pneumococcus may be found in small numbers. Considerable stress is given to the importance of the influenza bacillus alone and in connection with other organisms. What he wants to emphasize is that further examination of the sputum is necessary than is usually made, and that it is not sufficient simply to examine for tubercle bacilli, but that the influenza bacillus should be looked for in every case of chronic disease of the lung.

33. **Influenza.**—Lord concludes as follows:

1. Infection with influenza bacilli is prevalent apart from an epidemic of influenza. Influenza bacilli have been found in the sputa of sixty of one hundred unselected cases with cough. In about one-half of these sixty cases the influenza bacilli were in practically pure culture.
2. There is nothing distinctive in the clinical manifestations of influenza apart from epidemics, and the diagnosis can with certainty be made only by the examination of the sputum for influenza bacilli.
3. The duration of the cough and expectoration after an attack of acute influenza does not usually exceed six weeks, but in some cases the duration is for months or years.
4. Many of the cases formerly classed as chronic bronchitis are chronic influenza.
5. Cases of chronic influenza with paroxysmal dyspnea may closely resemble asthma.
6. Chronic influenza is not infrequently mistaken for pulmonary tuberculosis.

34. **Phalangeal Anomalies.**—Lund finishes his article in this issue and remarks that while no important results of practical character have been secured by radiographic study of web-fingers, it has been demonstrated that the deformity, unlike beauty, is more than skin deep, and presents a most formidable character to the surgeon.

St. Louis Medical Review, December 6, 1902.

38 The Testicle: The Preservation of Its Nutrition After Complete or Incomplete Division of the Arteries of the Spermatic Cord. Thomas H. Manley.
39 School Hygiene of the Eye. J. W. Sherer.

December 13.

40 The St. Louis Water Supply. R. B. H. Gradwohl.

December 20.

41 *The Office Diagnosis of the Gonococcus. G. Frank Lydston.
42 Pericarditis—Puncture—Postmortem. H. C. Fairbrother.

41. **The Office Diagnosis of the Gonococcus.**—Lydston criticises the deduction that every case where the gonococcus is found is of venereal type, and that the presence of the gonococcus is always necessary. All inflammatory affections from the urogenital mucous membrane are liable to be infectious in spite of the absence of this germ. We have no evidence as yet that the gonococcus can not be developed *de novo* in the female sexual tract, and evidence seems to show that this may be the case. He thinks the discovery of the gonococcus is only of relative clinical value, and he also remarks that the chances for innocent infection are considerably greater than those in syphilis, though he admits that his views will probably not be accepted by everyone. The ordinary office diagnosis of gonorrhea by means of the microscope is often exceedingly fallacious and misleading, and sometimes unjust.

Annals of Surgery (Philadelphia), December, 1902.

43 *The Pathogenesis and Pathologic Anatomy of Enlarged Prostate. L. R. G. Crandon.
44 Removal of an Upholsterer's Tack from the Right Bronchus. Augustus von Llew Brokaw.
45 *Landmarks in the Ureter. Byron Robinson.
46 *Subcutaneous Rupture of the Kidney, with Report of Nine Cases. George E. Dodge.
47 *Traumatic Rupture of the Spleen. Daniel N. Eisendrath.
48 *The Transduodenal Route (Duodenocholedochotomy) in Cases of Impaction of Gallstones in the Lower Portion of the Common Duct. Charles O. Thienhaus.
49 Strangulation of Vermiform Appendix in Right Femoral Ring. Herbert V. Rake.
50 A Contribution to the Study of Intra-abdominal Omental Torsion. James F. Baldwin.
51 *Primary Tuberculosis of the Parotid Gland. Jacob Frank.
52 A Simple Device for Holding Ligatures. Maurice Rubel.

43. **Enlarged Prostate.**—Crandon discusses the literature of the subject and concludes as follows: That the underlying cause of the usual form of prostatic enlargement and of certain forms of prostatic atrophy is slow formation of new connective tissue due to infection or to infection aggravating senile degenerative processes. The gonococcus is probably the usual specific infection, 1, on account of its frequency, and 2, because other inflammatory causes are not common in this region, and 3, because of the similarity between the histology of gonorrheal processes and those in the senile prostate. Neoplasms, fibromata and myomata, occur, but may be called rare.

45. **Landmarks in the Ureter.**—The substance of the conclusions of Robinson's elaborate article is that the ureter is not of uniform caliber, but consists generally in three isthmuses or sphincters located at points in the ureter where the projecting adjacent structures compromise its lumen: 1. The distal renal pole projecting the ureter medianward, producing what he calls the proximal isthmus, sphincter or neck of the ureter; 2, where the vasa iliaca press the ureter ventralward, producing the middle isthmus or sphincter, and this is due largely to the erect position in man and is lacking in quadrupeds; lastly, it is compromised where its distal end penetrates obliquely the muscular wall of the urinary bladder. These constrictions produce ureteral dilatation and there is a ureteral reservoir or spindle proximal to each ureteral isthmus. These are more pronounced in women than men on account of the periodic hyperemia during reproductive life, and in senescence pathologic dilatations of the lumbar and pelvic spindles are likely to occur with senile sclerosis or calcification. Calculi are liable to lodge at the ureteral isthmuses, and torsion of the ureter may easily compromise the ureteral neck or proximal isthmus. Surgical intervention on the ureter should be performed at the ureteral reservoirs or spindles on account of their ample lumen and wall. Pathologic conditions of the ureter are mainly in defects of the ureteral wall, producing deficient peristalsis, or in the mechanical obstruction to the ureteral stream. So long as ureteral peristalsis is not interfered with and the stream is not obstructed, the function is normal, but whenever either of these factors exist, the non-drainage induces residual deposits with resulting bacterial accumulation, hence the resulting vicious circle, exactly similar to that from the same defects of obstruction of the pylorus or bile ducts. The ureter is an independent organ conducting urine to the bladder by rhythmic waves, regardless of altitude or force of gravity. It has similar functions to the bladder; being located in a universally loose areolar bed, and being longer than the distance between its ends, it is capable of extensive range of motion in pathologic conditions or for surgical intervention. The irregular caliber of the ureter, dilatations and constrictions is a heritage from the Wolffian body enhanced by environments.

46. **Rupture of the Kidney.**—Dodge treats the general subject of rupture of the kidney and reports his nine cases. He found the most constant and characteristic symptoms to be pain and hematuria. The latter may be intermittent or late in beginning and occasionally absent. Oliguria is often met and anuria may occur, usually due to shock and ceasing in twenty-four to forty-eight hours. Shock is also present to some extent and is often a valuable index to the amount of hemorrhage. Temperature from 100 to 101 often exists during the first three or four days, and a higher temperature may appear from simple local tissue reaction. The presence of tumor, however, is usually recognized with difficulty in the early stages, but the rigidity of the back and flank muscles is characteristic. Where hemorrhage takes place into the peritoneal

cavity characteristic signs are often evinced on palpation and percussion. Later, general peritonitis may be present. If suppuration occurs in or about the kidney, rigors, temperature, sweating, and later exhaustion, make themselves evident. The complications and the diagnosis are also noted. The latter is usually easy with the history of the case. In uncomplicated cases the course is usually a mild one, convalescence beginning from two to ten days after the acute symptoms. Two or three weeks probably represent the average duration of the case, though pain may exist longer and the danger is greatly enhanced by a rent through the peritoneum and hemorrhage into the cavity. If there is marked extra-capsular hemorrhage the prognosis is generally aggravated unless early operation is resorted to. In the simple cases, if there is only slight or moderate hemorrhage, treatment is expectant, absolute rest, milk diet, local cold applications, the use of internal remedies for the control of hemorrhage and if the employment of the catheter is necessary, the strictest antisepsis being all that is required. If there are extensive accumulated clots in the bladder their removal by a suitable evacuator is indicated. The conditions that demand exploratory incision after the lapse of the first forty-eight hours are evidences of continued hemorrhage, persistent anuria, septic symptoms, etc. The transverse incision of McBurney is best adapted to these cases. The operation may be suturing, packing and partial or total removal of the organ according to the severity of the injury. Contraindications, of course, are injury, disease, absence or malformation of other kidney.

47. **Rupture of the Spleen.**—Eisendrath reports a case and finds that the mortality has been steadily reduced with experience with the operation, which is always required, though the general prognosis of the condition is bad.

48. **Duodenocholedochotomy.**—Thienhaus concludes that the transduodenal route has a well-defined place in the surgery of obstruction of the common duct produced by gallstones, and the method of its originator, McBurney, or that of Collins by dilatation of the papilla, are the methods *par excellence* for all cases of gallstones impacted at or near the opening of the papilla as soon as experiments of manipulation have proved unsuccessful. It is also indicated for stone impacted in the retroduodenal portion of the common duct or before the diverticulum of Vater, as soon as efforts to dislodge the stone up into the supraduodenal portion have proved futile. In all cases where the operation has been performed it is advisable to suture the common duct to the duodenum to avoid infection. Choledochotomia transduodenalis seems to be more advisable than choledochotomia retroduodenalis as it is more easily performed and does not interfere with the pancreas. It has not been proven that transduodenal choledochotomy has a greater percentage of fatalities from septic infection than supraduodenal choledochotomy. Further data are desirable.

51. **Tuberculosis of the Parotid Gland.**—The rarity of primary tuberculosis in this organ is first noticed by Frank, who adds a case to the eight already recorded, and discusses its symptoms and pathology. The prognosis is good with operative treatment. Total extirpation of the gland is not necessary for a cure. He concludes with a tabulation of recorded cases.

Annals of Ophthalmology (St. Louis), October, 1902.

53 *A Study of the Connective Tissue of the Orbit by a New Method. Lucien Howe.
54 *Toxic Amblyopia. J. P. Nuel.
55 An Analysis of 100 Cases of Refraction, with Special Reference to Headache. Alex. W. Stirling.
56 *When to Operate for Ripe Senile Cataract, the Other Eye Possessing Useful Vision. George F. Keiper.
57 Death from Meningitis Following Enucleation of the Eyeball. M. V. Ball.
58 Papillomatous Degeneration of the Conjunctiva. H. V. Würdemann.

53. **Connective Tissue of the Orbit.**—Howe's paper is a study to ascertain more exactly the location of connective tissues found in the orbit, their relation to strabismus, and operations for its correction. He holds that the fascia and even the finer bands are of clinical importance in relation to the accumulation of fluid or the extension of morbid growths, or in the protection they give from injuries or bacterial invasions, and are also of interest in relation to the normal motion of the globe. He reviews the literature, and finds that the term capsule of Tenon does not cover any exact conception. The difficulty is in recognizing the more delicate fibers, ordinary dissection having given rise to confusion, but these fibers are of unquestioned clinical importance. By using some new methods of staining connective tissue, more especially the use of potassium permanganate and oxalic acid, we have one of the best methods for identifying these connective tissue fibers and gaining a better idea of the capsule of Tenon, insertions of the recti, check ligaments and of other connective tissues in the orbit, which are of importance as regards the more practical points and in some respects the findings are new. He finds the capsule proper of Tenon extends a little beyond the line of insertion of the recti. He also outlines more exactly the external and internal check ligaments and inferior and superior check ligaments, some of which have a decided interest in connection with the operations for strabismus, etc.

54. **Toxic Amblyopia.**—Nuel reviews and criticises Birch-Hirschfeld's studies on toxic amblyopia, and filicic and quinin, and also reviews Holdon's experiments on methyl amblyopia. He comes to the conclusion that the trouble in these cases is due to a parenchymatous neuritis and that in alcoholic nicotine amblyopia it is of double, nerve and retinal origin. The argument against the parenchymatous nature of the affection, that it can not be followed by such marked recovery, is, he thinks, erroneous.

56. **Cataract.**—Keiper gives the replies to questions made to a number of ophthalmologists as to the time and conditions for the removal of ripe senile cataract and the results. He urges the removal of the ripe senile cataract, irrespective of the condition of the other eye, because the patient has a larger field of vision, rendering him less liable to the accidents of defective sight; the dangers and difficulties of extraction of an overripe lens are avoided; it offers continuous vision as the other lens is usually affected, and the patient is more comfortable with vision in both eyes, and the cosmetic effects are better.

Journal of Nervous and Mental Disease (N.Y.), December, 1902.

59 *Remarks on Acute Myelitis and Report of a Case of Tuberculous Meningomyelitis. Joseph Collins.
60 *Report of a Transverse Lesion of the Mid-thoracic Segments Leaving Intact the Posterior Columns, and Causing Syringomyelic Dissociation. Adolf Meyer.
61 A Case of Combined Sclerosis of the Spinal Cord. Frederick T. Simpson.

59. **Acute Myelitis.**—Collins reports a case commencing with symptoms of acute rheumatism and followed by myelitic symptoms, showing in the autopsy septic manifestations, extensive purulent leptomeningitis and inflammation of the cord, particularly of the lower dorsal segment. The bacillus of tuberculosis was found in portions of the lesions. He thinks that the apparent rheumatic symptoms were only the beginning symptoms of tuberculous infection of the cord.

60. **Transverse Lesion of the Cord Not Involving the Posterior Columns.**—The case reported by Meyer is of interest in regard to certain symptoms of sensibility, etc. There was practically a destruction of the cross sections of the fourth to sixth thoracic segments, leaving intact only the dorsal two-thirds of the posterior columns and a few pyramidal fibers. The tactile sensibility, pressure sense, tickle sense and sense of position were normal. Analgesia and thermanesthesia existed below the sixth rib on the right and fifth rib on the left, and a slight thermo-hyperesthesia over the fourth rib. Occasionally a girdle sensation occurred and there was paralysis below the thorax allowing but a slight pull on the thigh and toes and upper end of the recti. There was also occasional involuntary pulling up of the thighs, sometimes accompanied by shooting pains. The functional bearing of the disease on some conditions of conduction of temperature and weight sense are noted.

American Gyecology (N. Y.), November, 1902.

62 *The Mimicry of Pregnancy by Fibroid and Ovarian Tumors. Howard A. Kelly.
63 *Pregnancy and Labor Following Complete Nephro-ureterectomy. J. Wesley Bovée.
64 *Myoma of the Ovary. J. M. Baldy.
65 *The Treatment of the Extra-uterine Placenta by the Open Abdomen. Ely Van der Warker.

66 *The Lymph Glands in Uterine Cancer. George Gellhorn.
67 *The Pathology of Eclampsia, with Photomicrographic Illustrations. Greer Baughman.
68 Gastrointestinal Hemorrhage of the New-born—Case Treated with Normal Salt Solution and Gelatin, One-half 1 per cent.—Recovery. John F. Moran.

62. **Pregnancy Simulated by Tumors.**—Kelly reports cases of confusion of diagnosis, and points out the misleading symptoms. The mimicry of pregnancy by tumors is very close, but there are certain diagnostic signs always present. The first is absence of fetal pulse and the synchronism of pulsation of the tumor with the radial pulse. Other important points are the continuance of menstruation and the unaltered hard cervix. A careful examination for ascites and a recto-abdominal bimanual examination under a brief anesthesia will help to clear up the diagnosis. A better knowledge of abdominal palpation in advanced pregnancy will be valuable. The age of the patient and the length of time elapsed since the appearance of the tumor, absence of regular enlargement of the womb, the non-occurrence of labor, etc., are also mentioned.

63.—See abstract in THE JOURNAL, XXXIX, p. 1339.

64. **Myoma of the Ovary.**—Baldy reports a case in which ovarian substance was converted into a neoplasm, assuming all its anatomic relations and still containing some ovarian tissue.

65. **Treatment of Extra-Uterine Placenta.**—In a case reported by Van de Warker an operation was performed and the placenta found distributed over an extensive area, estimated at over a square foot. Its removal in the septic and weakened condition appeared to invite a hemorrhage that would quickly prove fatal. It also seemed dangerous to close the wound with any of the usually practiced means of drainage. He therefore left the wound partially open, closing the peritoneal cavity by stitching the free edges of the sac to the peritoneum and placing in the cavity large folds of sterilized gauze. The following day the placenta was attacked with injections of 1 to 1000 solution of formalin night and morning. After about three days' gentle traction was made on the cord, and daily thereafter by means of a long curved fenestrated sponge forceps, piece after piece of the placenta was removed, the cavity contracting accordingly. When the last portion was removed, some eleven days after the operation, the degenerated edges of the wound were cut away and the wound closed. Primary union occurred.

66. **The Lymph Glands in Uterine Cancer.**—From a very extensive study of the literature, Gellhorn finds a remarkable inconstancy in the distribution of the lymph system, even under normal conditions. Carcinomatous degeneration produces in the majority of cases a marked change in the macroscopic aspect of the glands. The fact has been brought out that in about one-third of all the cases of uterine cancer involvement of the regional glands in the pelvis takes place. This occurs rarely in the incipiency of the disease and usually only after primary cancer is more or less advanced and extended into the parametria or other adjacent structures. Recurrence after the old methods of operating takes place in four-fifths of all cases in or near the cicatrix of the vagina, while it occurs in only one-fifth in the glands. Abdominal radical operation, with removal of the pelvic glands, strives to lessen the high percentage of recurrences, but so far has not been successful. This deficiency depends on anatomic and technical difficulties in routine ablation of pelvic glands. In a large number of cases this radical procedure, with its great and manifold dangers, has been found to be unnecessary, as there were no diseased glands anywhere within the pelvis. These conclusions, however, are not yet definite, and many questions are still in suspense. The future of abdominal operations will depend on laboratory researches and practical experience, the former showing what percentage and how early involvement takes place in uterine cancer and which forms of carcinoma lead to lymphatic infection and which glands are most frequently involved. Practical experience will in due time tell us whether recurrence can be made less frequent and the mortality diminished. The paper concludes with a lengthy bibliography.

67. **Eclampsia.**—Baughman gives the characteristic pathologic findings from a review of the literature. The kidneys always show evidences of degeneration and the liver is studded with punctate hemorrhages, thrombi and degenerated epithelium. The mucous membrane shows punctate hemorrhages with necrosis of the epithelium. Similar lesions are found in the heart; not so frequently in the suprarenals, pancreas, and gastrointestinal tract. The paper is illustrated with microscopic sections from a case of eclampsia, showing uterine, kidney and hepatic tissue.

Journal of Medical Research (Boston), November, 1902.

69 Preliminary Note on Some Effects of Tobacco on the Tissues of Rabbits. I. Adler.
70 *On Thrombi Composed of Agglutinated Red Blood Corpuscles—Preliminary Communication. Simon Flexner.
71 *Experiments on the Permeability of the Berkefeld Filter and the Pasteur-Chamberland Bougie to Bacteria of Small Size. Wm. B. Wherry.
72 Researches on the Action of Tuberculin on Rabbit's Blood. Hugh M. Kinghorn.
73 *A Study of Chronic Infection and Subinfection by the Colon Bacillus. 1. On the Anemia Produced by Repeated Injections of Cultures of a Colon Bacillus of Low Virulence. G. A. Charlton.
74 On the Hemolytic Potency of Certain Sapotoxins Dissolved in Blood Serum. A. Arthman Bruère.
75 Simple Adenoma of the Pancreas Arising from an Island of Langerhans. Albert G. Nicholls.
76 A Study of Eel Serum, and the Production of an Antitoxin in a Cold-blooded Animal—A Contribution to the Study of Immunity. Justin de Lisle.
77 Dog's Blood—Differential Counts of Leucocytes. F. C. Busch and C. Van Bergen.
78 On Branching Forms of Certain Bacteria. L. M. Loeb.
79 A Chemical Study of the Liver from a Case of Acute Yellow Atrophy of the Liver. Alonzo Englebert Taylor.
80 *Multiple Anemic Infarcts of the Liver. Frederick A. Baldwin.
81 On the Erythrogehic Spleen of Mephitis Mephitica. Walter R. Brinckerhoff.

70. **Red-Blood Corpuscle Thrombi.**—The following are Flexner's conclusions:

1. The agglutination of red corpuscles *intra vitam* is not uncommon in infectious disease in man and animals. 2. A special variety of thrombi is produced through this agglutination which may be denominated agglutinative thrombi. 3. When such thrombi are old, or when the agglutination is compact, they may present appearances to which the name of hyaline thrombi has been applied. 4. Other alterations of the blood than those arising in infectious disease may bring about agglutinative thrombosis, the nature of this alteration being little understood. 5. Poisons which destroy corpuscles rapidly are provocative of agglutinative thrombosis. 6. The so-called fibrin ferment thrombi are probably nothing else than agglutinative thrombi.

71. **The Permeability of the Berkefeld Filter.**—Wherry has experimented with three sizes of the Berkefeld filter to determine the time in which bacilli and bacteria can pass through and the time it requires for them to grow through the substance of the filter. His summary is given as follows:

1. The bacillus producing pneumonia in guinea-pigs will pass through the pores of the small Berkefeld filter, No. 5, under the conditions of the experiments noted. It did not pass through the larger Berkefeld, No. 8, perhaps on account of the greater thickness of the walls, the relatively small amount of the fluid passed through, and the somewhat diminished pressure. Nor did it pass through the Pasteur-Chamberland bougie. It is probable that these filters, especially No. 5, will be found even less efficient when very turbid, concentrated cultures are passed through. This was the case in Smith's experiments cited above.

2. *Bacillus coli communis* did not pass through any of the above filters.

3. *Bacillus coli communis* and the organism from pneumonia in guinea-pigs grows through the walls of the Berkefeld filter very rapidly; through the walls of the Pasteur rather slowly.

4. It seems justifiable to conclude that if the virus of a disease passes through the pores of the Berkefeld it is not necessarily ultramicroscopic. Further work with organisms of various size might help in defining the size of the pores of such a filter and determine whether various filters of the same make have the same size pores or not.

5. It would seem advisable that workers should make a preliminary test of filters, by employing some such minute organism, in order to determine more accurately the efficiency of the filter used.

73. **Subinfection by the Colon Bacillus.**—Experiments on rabbits, one set of which received small doses of culture of the non-virulent form of the *Bacillus coli* injected into the abdominal cavity, while the other received a smaller amount of a similar culture injected directly into the circulating blood through an ear vein, gave rather striking characteristic results. Charlton finds this "subinfection" of rabbits produced a marked and progressive anemia indicated by reduction in the number of red corpuscles, poikilocytosis, appearance of nucleated red corpuscles, reduction of hemoglobin, etc., together with progressive ascending paresis, ending in paralysis. The condition is very similar to that of pernicious anemia, but differs from that in the fall of the amount of hemoglobin

being parallel with the decrease of the red blood corpuscles, and in the absence of a distinct Quincke's siderosis, and of clear evidence of inflammatory or other disturbances of the digestive tract, and of changes in the bone-marrow.

80. **Anemic Infarcts of the Liver.**—Understanding by these the area of necrosis due to shutting off the blood supply, Baldwin discusses the literature and reports a case with elaborate postmortem examination. He found it was a case of multiple anemic infarction of the liver, accompanying similar conditions found in other organs. Such infarctions occur but rarely, and then only when the liver labors under such disadvantages that it can not overcome the results of an embolism or thrombosis in its congested hepatic vessels.

Mississippi Medical Record (Vicksburg), December, 1902.

82 Strangulated Umbilical Hernia: Report of a Case. Louis Frank.
83 *Some Experiments with Quinin. H. N. Stilphen.

83. **Quinin.**—Stilphen has experimented on himself with quinin, testing the amount of urine and urea passed with various doses, also regulating the diet and drink. The object was to find the action of quinin on the kidneys by comparing the results obtained during the two weeks of the experiments. There was a marked diminution in the amount of urine with increase of urea on the second week, showing that 20 gr. doses of quinin will affect the kidneys. From this he would say that the use of quinin is contraindicated in all forms of acute and chronic affections of the kidneys and liver, especially in acute uremia, liver atrophy, hematuria, yellow fever, etc.

New York Medicinische Monatschrift, October, 1902.

84 *Ein Fall von schwerer Verbrennung mit hydriatrischen Bemerkungen zur Behandlung der Brandwunden. Friedrich Grosse.

84. **Treatment of Burns.**—Grosse describes a severe burn in a child aged 7, involving the face, neck, breast and both hands and over a portion of its surface destroying the stratum papillare. The patient was first treated with carron oil applications, but when he came into Grosse's hands, he used applications of absorbent gauze wrung out of a 1 to 2000 chinosol solution, with the best results and a very considerable diminution of the scar. He remarks in favor of moist applications of this kind in preference to the oily ones, covering them with water-proof material and applying them tolerably warm. He does not favor cold applications. He discusses the subject from the point of view of the literature, and remarks, in closing, that similar applications are valuable in other kinds of wounds.

Pennsylvania Medical Journal (Pittsburg), November, 1902.

85 *Address in Mental Disorders, Medical Society of the State of Pennsylvania. J. M. Murdoch.
86 A Case of Phlyctenular Keratitis Complicating Smallpox. Edward Stieren.
87 *Corneal Tattooing. J. L. Borsch.
88 *Report of a Case of Bitemporal Hemianopia, and of Case of Orbital Cellulitis After Bowman Operation, with Use of a Leaden Style. Walter B. Weidler.
89 Infantile Scurvy—Report of a Case with Fracture of the Femur and Multiple Epiphyseal Separations. Theodore J. Elterich.
90 *Epilepsy as Related to the Ocular Muscles. Wendell Reber.
91 A Fatal Case of Hysteria. Theodore Diller.
92 *The Elevation of the Stomach in Gastroptosis by the Surgical Plication of the Gastro-hepatic and Gastro-phrenic Ligaments: An Original Operation. Henry D. Beyea.
93 Chronic Sphenoid Abscess. Lewis S. Somers.

85.—See abstract in THE JOURNAL, xxxix, p. 857.

87. **Corneal Tattooing.**—The technic of this operation is described by Borsch, in which he advocates the use of the single needle and the importance of not rubbing the eye to remove the excess of ink, but allowing boric acid solution to flow over it. He urges also the importance also of following the outlines of the structures underneath and imitating the normal eye as much as possible. The striations of the iris should be followed and the darker tints of the iris obtained by making perpendicular thrusts between the striations; the closer they are, the darker the tint. In this way the eye may be made to assume the color of the iris covered by the leucoma so that in many cases it is impossible to distinguish the actual condition except by the closest scrutiny. He also remarks on the notable improvement in vision that sometimes follows tattooing of the smaller opacities, and says in conclusion that many patients now wearing artificial eyes might have retained their natural ones if the possibilities of tattooing were more generally known.

88.—See abstract in THE JOURNAL, xxxix, p. 791.

90. **Epilepsy and Eye Strain.**—What Reber proposes to show is that various cases of epilepsy have continued to have their seizures with uninterrupted frequency, notwithstanding the faithful use of carefully adjusted glasses, but that in a certain percentage of cases the seizures can be diminished in frequency, and sometimes made to disappear entirely by resorting to prism glasses and exercises, or as a last resort to tenotomy—and all this without drug treatment. He does not accept the enthusiastic claims of Stevens and Ranney, but thinks that the condition of the eye nevertheless is worthy of the most careful attention in many epileptic cases. He reports a number.

92.—See abstract in THE JOURNAL, xxxix, p. 857.

Buffalo Medical Journal, December, 1902.

94 The Surgical Specialty. A. L. Benhan.
95 *The Diet of the Asthmatic. George N. Jack.
96 Infant Feeding. A. J. Colton.
97 *Surgical Importance of the Caput Coli, and Its Etiologic Factorate in Producing Inflammation of the Vermiform Appendix. J. P. Creveling.
98 Some Observations on the Climate of the West. John L. Heffron.
99 A Case of Cutaneous Horn. Alfred E. Diehl.

95. **Diet in Asthma.**—Jack insists on the importance of a properly selected and individualized diet, as this disease depends on the functions of the blood and lungs, the blood carrying the alimentary substance throughout the system, and itself undergoing very important modifications in the lungs. He thinks that asthma is always on the borderland of severe blood conditions, such as leukemia, pernicious anemia, cerebral hemorrhage and hemorrhagic conditions of the respiratory mucosa. On account of these vicious, progressive tendencies a diet must be given such as will replace the waste of the disease and prevent intestinal fermentation and putrefaction. It must be of such a character that it will not, after absorption, readily undergo perverted chemical metabolic changes in the blood. It must also be of such a character that it can be persisted in for many years. The misery of the disease, and malnutrition from impoverished blood causes melancholia, which in turn materially interferes with the digestive function. He reviews the various types of asthmatic lymphocytosis, asthmatic toxic leucocytosis and asthmatic anematosis. In the former case he thinks in children it is advisable to completely or partially substitute the bottle for the breast, especially in cases of breast-fed infants with prominent cyanotic attacks of increasing severity. In toxic leucocytosis he would carefully watch the stools, blood and urine, as well as the general condition of the patient and give a fairly elaborate diet without much sugar, but largely composed of vegetables, which he enumerates. Animal foods are most apt to cause deleterious changes in the intestines, and if the stools become alkaline they should be diminished, while if they become acid the carbohydrates should be limited. Meat should also be interdicted or diminished if there is a marked leucocytosis exceeding that of the normal digestion, but if there is iodophilia of the blood, then carbohydrates should be cut off. His conclusions are:

If on a differential count the blood shows a high percentage of small lymphocytes, milk should be diminished or withheld. An abnormal increase in the polymorpho-nuclear neutrophilic cells indicates an intestinal toxemia and putrefaction which suggests the withholding of meat foods. A pronounced iodophilia indicates an amyloid or starchy degeneration of blood and suggests the withholding of foods rich in starch. A thin, watery blood with a deficient plasma and a red corpuscle poor in hemoglobin and deficient in biomagnetism, as shown by the lack of rouleaux formation and the scattering of the red blood corpuscles about the field, indicates the giving of fresh bloody meat, raw eggs and green vegetables rich in chlorophyl and protoplasm.

97. **Cecal Inflammation.**—Creveling calls attention to the importance of inflammation of the cecum in many cases where the appendix gets the blame. The latter may be found healthy, even when the bowel itself is diseased.

California State Journal of Medicine (San Francisco), November, 1902.

100 Some Notes on the Visit of Professor Lorenz of Vienna to San Francisco. Philip M. Jones.

101 *The Aleuts: Some Hygienic Observations by a Layman. W. F. B.
102 Report of a Fatal Case of Gastro-duodenal Ulcer; with Autopsy Findings. William F. Cheney.
103 The Mastoid Operation in Chronic Suppurative Otitis Media. H. Bert Ellis.

101. **The Aleuts.**—This article by a layman describes the habits of the Aleuts, showing the excessive mortality among them since they have come in contact with the whites and have changed their habits and clothing. Their mode of living has never been exactly sanitary, but under present conditions the effect on their statistics is much worse; consumption especially is increasing among them. While their dwellings would seem to favor the conditions of typhoid, it seems to be unknown among them, and the filth diseases that infect even the cleaner cities are hardly present in Alaska among the natives. Their drinking habits, where they can get alcoholic liquors, are bad. This also is deteriorating the race.

American Practitioner and News (Louisville, Ky.), October 1, 1902.

104 Electrotherapy Reviewed Briefly: History, Progress, Remarks. Joseph W. Irwin.
105 Version. Walker B. Gossett.
106 *Puerperal Eclampsia. J. T. Reddick.
107 Abortion of Gonorrheal Ophthalmia. Warwick M. Cowgill.
108 The Therapeutic Uses of the *X*-ray, with Report of Cases. Jesse T. Dunn.

106.—See abstract in THE JOURNAL, xxxviii, p. 1389.

Medical Fortnightly (St. Louis), December 10, 1902.

109 Plastic Surgery in Ophthalmology. Flavel B. Tiffany.
110 A Few Days with a Country Practitioner. W. L. Downing.
111 Conglomerate Cystic Kidney—Report of a Case. J. F. Herrick.
112 The Value of Reconstructive Therapy in Modern Medicine. C. H. Powers.

Medical Herald (St. Joseph, Mo.), December, 1902.

113 *William Beaumont: A Pioneer American Physiologist. William Osler.
114 Cancer and Its Treatment by the *X*-ray. Charles G. Geiger.
115 Foreign Bodies in the Ear. M. F. Weymann.
116 A Few Remarks on the Treatment of Malaria. G. H. Moller.

113.—See THE JOURNAL, xxxix, p. 1223.

Dominion Medical Monthly (Toronto), November, 1902.

117 Gallstones. F. W. Hall.
118 The Sphere of the General Practitioner in the Diagnosis and Treatment of the Insane. G. H. Manchester.
119 Cancer of the Breast. O. M. Jones.
120 Tuberculosis. British Columbian Legislation. Charles J. Fagan.
121 An Unusual Case of Umbilical Hernia. Ernest A. Hall.

Peoria Medical Journal, November, 1902.

122 The Alarming Prevalence of Venereal Disease. R. A. Kerr.
123 Modern Views on Uric Acid and the Purin Bases. O. J. Roskoten.
124 Experiments with a New Anti-malarial Remedy. A. G. Servoss.

Medical Standard (Chicago), December, 1902.

125 A Medical Clinic. Daniel R. Brower.
126 The Commoner Diseases of the Eye. How to Detect and How to Treat Them. Casey A. Wood and Thomas A. Woodruff.
127 Practical Dietetics. A. L. Benedict.
128 Hot and Cold Water in Eye Diseases. Willis O. Nance.
129 Landmarks in the Tractus Genitalis. Byron Robinson.
130 Massage or Manual Therapeutics. John Mulholland.
131 Pain and Its Indications. E. C. Hill.

American Medical Compend (Toledo, Ohio), December, 1902.

132 The Predisposition to Hernia. B. Becker.
133 Phlebotomy—A Case. J. T. Woods.
134 Report of an Interesting Case of Meningitis. A. L. Steinfeld.
135 Pernicious Anemia with Report of a Case. Herbert E. Smead.
136 The Management and Treatment of Fistula in Ano. H. E. Noble.
137 Therapeutics of Dropsy. D. E. Bowman.

University of Pennsylvania Medical Bulletin (Philadelphia), December, 1902.

138 The Gas Evolved in the Decomposition of Hydrogen Dioxid by Pus. John Marshall.
139 Accurate Anthropometric and Orthopedic Record by Uniform Photographic Method. Joseph M. Spellissy.

Carolina Medical Journal (Charlotte, N. C.), November, 1902.

140 Fevers and the Microscope. Hughes B. Hoyle.
141 Malaria and Pregnancy. A. B. Greiner.

Medical Summary (Philadelphia), December, 1902.

142 Constipation and Mental Influences. J. R. Smith.
143 Treatment of Tuberculosis. Harrison E. Stroud.
144 The House Fly a Conveyer of the Bacilli of Typhoid Fever. C. W. Canan.
145 Medicine a Science. J. L. Wolfe.
146 There Are Waters and Waters, but Pure Water is the Elixir of Life. W. H. Vail.
147 Practical Thoughts for the Practitioner. S. D. Sour.
148 Mistaken Diagnosis of Rectal Diseases. George J. Monroe.

Maryland Medical Journal (Baltimore), December, 1902.

149 A Résumé of *X*-ray Work with Some Personal Observations. Frances C. Bayne and Henry F. Cassidy.
150 Is the Tendency to Contract Contagious or Infectious Diseases Greater in the Prisoner than in the Freeman? Theodore Cooke, Jr.

Pacific Medical Journal (San Francisco), December, 1902.

151 Address, San Joaquin Medical Society. J. B. Rosson.
152 An Ovarian Multilocular Cystoma. Winslow Anderson.
153 The History of the Pawpaw. F. C. Keck.
154 Senility with Cerebral Hemorrhage. Louis Jacobs.
155 Temperature of 110° F. in an Infant Ten Days Old. C. W. Kahl.

Medical Review of Reviews (N. Y.), November 25, 1902.

156 Traumatism During Adenoid Operations. Walter F. Chappell.
157 The Prevention and Treatment of Typhoid Fever. Henry H. Pelton.

Proceedings of the Pathological Society of Philadelphia, November, 1902.

158 Address of the President. Charles W. Burr.
159 A Study of Myocarditis, with Special Reference to Changes in the Elastica in Myocardial Affections. W. M. L. Coplin.

Medical Examiner and Practitioner (N. Y.), December, 1902.

160 Macroscopic Examination of the Urine. F. C. Valentine.
161 Hemophilia and Its Significance in Life Insurance Examinations. Andrew H. Whitridge.
162 Treatment of Acne Vulgaris. George Henry Fox.
163 Heredity, with a Study of the Statistics of the New York State Hospitals. William C. Krauss.
164 The Early Diagnosis of Pulmonary Tuberculosis. Searle Harris.
165 Gastric Dilatation and Prolapse as a Factor in Disease. Chauncey Rea Burr.
166 Medico-Life Insurance. W. Ed. Grant.
167 Common Sense Tonic Medication, with Illustrative Cases. A. W. Duvall.
168 A Case of Stricture Aggravated by Improper Treatment. W. C. Watts.

Medical Mirror (St. Louis), November, 1902.

169 What Constitutes Conservatism in the Treatment of Appendicitis? William E. Fitch.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal (London), December 13.

1 *Plugging with Iodoform Gauze in Operations Performed in Cavities of the Body. Ernst von Bergmann.
2 *The antiseptic Method of Lister in the Present and in the Future. Lucas-Championière.
3 *Certain Cerebral Localizations. Francesco Durante.
4 Antiseptic Treatment of Wounds. Oscar Bloch.
5 *Treatment of Fractured Patella. Von Mikulicz-Radecki.
6 *Infective Arthritis. Howard Marsh.
7 The Influence of Lister Upon Military Surgery. Alex Ogston.
8 Pasteur and Lister. D. Berry Hart.
9 Lord Lister and Antiseptic Surgery.

1. **Iodoform Gauze Plugging.**—Von Bergmann describes his method of plugging with iodoform gauze in resections of the upper jaw, operations on the tongue and total extirpation of the larynx. He leaves the tampon undisturbed in the jaw for several days—even as long as ten days—before removal, and on removing finds the wound partially cicatrized and the remainder with healthy granulations. He has been fortunate in avoiding infection of the wound in this way in every case, except one in which erysipelas occurred. To avoid pneumonia from aspiration he has performed preliminary tracheotomy and plugging of the trachea in most cases. In extirpation of the tongue by Langenbeck's method, he tampons the whole wounded surface. In total extirpation of the larynx he plugs the large wound cavity on either side of the pharynx between it and the lateral muscles of the neck with iodoform gauze, which very soon adheres firmly by suction. At present he considers that an essential part of the after-treatment consists in completely shutting off the trachea from the oral and pharyngeal cavity by suturing it to the external skin at the lower angle of the mouth and by forming two lateral cutaneous flaps, which are then united above the trachea with the posterior circumference of its transverse section, thus enclosing the trachea by skin. To avoid the flowing of saliva or mucus into the trachea from the part of the wound which lies above these two flaps he carefully stuffs that part with iodoform gauze tampons. He finds the value of plugging with iodoform gauze most strikingly shown in excisions and resections of the rectum, where he stuffs the

entire wound cavity around the rectum, leaving it undisturbed for six to eight days.

2. **The Lister Method.**—Lucas-Championnière gives the history of Lister's work, showing that the failures that have been made have been from infidelity to the principles laid down by him. He is severe in his remarks on the rejection of antisepsis. Asepsis is not a new discovery; it is simply the carrying out of Lister's ideas and the neglect of antisepsis always involves the exposure to infection.

3. **Cerebral Localization.**—Eight cases are reported by Durante, 6 for dural and cerebral neoplasms and 2 for remote post-traumatic conditions, with 8 cures, 5 complete and 3 with defect. He discusses the effect of lesions of the frontal, or especially the prefrontal lobes, and calls particular attention to one of his cases, in which there was total anesthesia of the whole of the left arm from traumatic depression of the hinder portion of the right parietal bone. On removal of the depressed bone sensibility was completely restored in six hours. He considers that this case has a value as a physiologic experiment on man. The depression was situated 3 cm. distant from and behind the Rolandic fissure, that is, completely removed from the psychomotor zone and well in the parietal lobe. The baric and stereognostic, as well as the thermic and tactile sensibilities were completely abolished, and yet the restoration occurred within the short period mentioned. He thinks this is the only case in the literature that clearly proves that the center, at least for the superior extremity, of these sensibilities is situated in the parietal lobe. His conclusions are given as follows:

> That lesions, especially those determined by neoplasms, of the frontal lobes are nearly always accompanied by very grave phenomena of altered intelligence; which proves that the frontal lobes, and particularly the prefrontal, must be considered as the seat of the most elevated functions of the mind. 2. That the cortical center for hearing is situated in the temporal lobes, that each center is in relation with both the auditory nerves, and that the direct auditory bundle must be very much less active and smaller than the crossed auditory bundle. 3. That the site of the center for general sensibility and for muscular sense is in the parietal lobes, and that disturbances of general sensibility and of the muscular sense may occur in the limbs independently of any disturbance of motility whatsoever. 4. That for the solution of various problems concerning the functions of the several regions of the human brain, operative surgery and pathologic anatomy are more useful than experimental physiology, which has animals only at its disposal; the functional arrangement of the brains of such animals has some analogy with that of man, but certainly can not be compared with it in every respect.

5. **Fractured Patella.**—The results in 45 cases of fractured patella observed in the last twelve years by Von Mikulicz-Radecki in the Breslau Hospital form the subject of this article. He describes the different forms of fracture, the pure blow fracture or the tear, especially in reference to the question of whether suture of the patella is necessary or not. With few exceptions he would abstain from suturing the fractured patella in blow fractures and limit himself to medico-mechanical treatment and rest in the condition. In tear fractures, where the ligaments are torn apart, he has employed suture. He operates without exsanguinating the limb, making the incision correspond to the line of fracture and long enough not only to expose the patella, but also the torn patellar ligaments. This incision is better than the longitudinal one on account of the clear view it gives. Latterly he has used brass wire suturing, avoiding carefully any sublimate solution, putting three or four sutures in the bone, the accessory ligaments being sutured on each side with one or two sutures as well as the patella. In all, five to eight sutures will be applied. The blood-clot is removed with a sharp spoon during irrigation with sterile boiled salt solution. Drainage is not inserted, but the wound is closed, except for 1 cm. at each end of the skin incision, which remains unsutured. This is sufficient to allow the escape of any subsequent oozing, and does not prevent healing by first intention. In late operations there is less difficulty in bringing down the ends of the bone, and he has relieved the tension of the muscle by making a V-shaped incision in it, and later restoring its continuity by sewing up the edges of the cut with strong catgut sutures. The results are analyzed and generally seem to be thoroughly satisfactory.

6. **Infective Arthritis.**—The Bradshaw lecture by Marsh begins with a historical sketch, and then reviews the various forms of microbic arthritis, pneumococcic, typhoid, scarlet fever, influenzal, erysipelatous, glanderous, etc. He describes the infective joint changes and the unclassified infective arthrites and reports cases. In conclusion he remarks that the first form of infective arthritis mentioned, that which consists of transient synovitis with slight effusion, has a good prognosis and a suitable splint and warm fomentations are all that is required. Where the joint cavities, however, contain fluid, it must be removed and the joint thoroughly irrigated with carbolic solution 1 to 100, or mercurial solution, of which the best has been biniodid 1 in 1000. A full-sized hydrocele trocar may be used and irrigation through the canula or incision be employed. If the fluid is purulent the joint must be thoroughly drained, and any adhesions broken down with the finger followed by copious irrigation. In the third or plastic form, the prognosis is distinctly unfavorable and here the arthritis is but one of the manifestations of the general septicemia and is often associated with other lesions; it is also highly unfavorable. In fact, it is often only an unimportant complication of the general condition, with its fatal termination.

The Lancet (London), December 6.

10 The Meaning of a Profession. William Smart.
11 The Cardiac Muscle from a Clinical Point of View. Seymour J. Sharkey.
12 *The Natural History and Pathology of Pneumonia. J. W. Washbourn.
13 *A Note on the Causation and Treatment of Thrombosis Occurring in Connection with Typhoid Fever. A. E. Wright and H. H. G. Knapp.
14 Obturators. T. S. Carter.
15 A Method of Removing Small Metallic Foreign Bodies from the Stomach Without External Operation. Stephen Mayou.
16 The Clinical Association of Re-duplicated First Sound. Arthur G. Phear.
17 *A New Departure in the Treatment of Hypopyon Keratoiritis. G. Herbert Burnham.
18 A Case of Concealed Accidental Hemorrhage. J. W. Ingles.
19 Eosinophilia Associated with Bilharzia Disease. A. E. Russell.
20 Report on Outbreak of Typhoid Fever and Other Illness Due to Oysters. John C. Thresh.

December 13.

21 *Infective Arthritis. Howard Marsh.
22 *The Surgery of Acute Appendicitis. C. B. Lockwood.
23 The Clinical History and Symptoms of 120 Cases of Exophthalmic Goiter. George R. Murray.
24 *The Incidence of Alkaptonuria: A Study in Chemical Individuality. Archibald E. Garrod.
25 Ablation of the Crystalline Lens to Rectify High Myopia. William J. Collins.
26 A Case of Chronic Gastric Ulcer Successfully Treated by Excision. Ernest W. Hey Groves.
27 Notes on Sleeping Sickness. C. A. Wiggins.

12. **Pneumonia.**—In his fourth Croonian lecture Washbourn discusses the question of the inhalation of fine particles by the lungs and gives details of his experiments; the mode of their introduction into the lungs is the special point. The bulk of evidence favors the view that no absorption of particles takes place through the mucous membrane, trachea and bronchi. It is probable that they go through the alveolar walls. The two chief lines of defense against the entrance of particles are the nose and the larynx. The mucosa over the turbinal bone retains an enormous amount of dust. Tracheotomized animals, therefore, are not in a favorable condition to estimate this question. Violent respiratory movements facilitate the entrance of dust into the lungs, and may lead to rupture of minute blood vessels. Small areas of collapse are frequently seen in the lungs of animals which have inhaled soot or dust. Particles getting into the alveoli are gotten rid of in the following manner: Some pass through into the lymphatics and either reach the bronchial glands, where they are retained, or are retained in the adenoid tissues and thence may be excreted to the bronchi by means of cells, while some are taken up by cells and thus passed into the bronchi and are ultimately extruded through the upper-air passages.

13. **Typhoid Thrombosis.**—The thrombosis in typhoid fever is thought by Wright and Knapp, from the results of their experiments, to be due to the excess of lime salts in the blood of typhoid convalescents. Increased coagulability may depend on this excess. The remedy is citric acid, which, for prophylaxis also, might be initiated as soon as the danger of intestinal hemorrhage has been surmounted. A partial decalcification of the milk in the diet might be wise. This can be

readily effected by adding to the milk from 0.25 to 0.5 per cent. of citrate of soda (from 20 to 40 grains per pint).

17. **Hypopyon Kerato-Iritis.**—Burnham relies on the purely constitutional treatment for severe cases, save the dropping of a 4-gr. solution of atropin every day or two and the casual bathing of the eye with a little hot water or boric acid. It consists in the use of mercury or iodid of potash taken internally and pilocarpin given hypodermically. The results, he says, have been exceedingly satisfactory.

21.—See also ¶6, above.

22. **Appendicitis.**—Lockwood is not in favor of operation in all cases. He calls attention to the relative importance of the pulse and temperature, the pulse first, temperature next, and after these the respiration. Generally one need not be alarmed if the temperature is 102 and the pulse 90, but if the pulse is 130 and the temperature 99, the condition would be alarming. The main points to be taken into consideration as regards operation are the mode of onset, including the intensity, duration of pain, rigor and vomiting, pulse, temperature and respiration, conditions of constipation or obstruction, the different forms as regards tenderness, rigidity, hardness, edema, etc., mobility of the abdominal walls and intestines, micturition, inflammatory swelling, the presence or absence of complications, such as colitis, nephritis, cystitis, pleurisy, pneumonia, subdiaphragmatic abscess, hepatic abscess, pyemia, septicemia, tubercle, actinomycosis and malignant disease. Pregnancy is an occasional and serious complication. He thinks when we are in doubt, it is better to operate. He does not believe in opiates in the medicinal treatment, and has gradually become more averse to the use of purgatives. He would remove the appendix in every case where it is possible. Biniodid catgut he finds thoroughly efficient for securing the bleeding vessels, the meso-appendix, the stump of the appendix, the omentum, and, finally, the layers of the abdominal wall. Silk and silkworm gut are not satisfactory in sepsis. If pus is found the wound should be drained and he would use gauze or a rubber drain. He also considers the expediency of incising and emptying the intestine when there is distension due to peritonitis, and considers it a safe procedure. The opening closes if there is no occlusion of the intestine beyond.

24. **Alkaptonuria.**—Garrod has studied a number of cases of alkaptonuria, paying particular attention to history, consanguinity of parents, etc., and suggests the possibility of its being a sort of metabolic sport or individualism of metabolism, not the result of a pathologic process. The thought presents itself that these are merely extreme examples of variations of chemical behavior, which are probably everywhere present in a less degree. The individuals of species do not always conform to an absolutely rigid standard of metabolism.

Indian Medical Gazette (Calcutta), November.

28 *A Note on the Pathology of Mycetoma, and on the Part Played by the Lymphatic Vessels in the Spread of the Disease. J. Maitland.
29 Hypnotism in Therapeutics. T. H. Delany.
30 A Note on Jail Tuberculosis. Ernest E. Waters.
31 *Is "Malarial Cachexia" Purely Malarial? Leonard Rogers.
32 *Is Antivenene of Any Value in Cobra Poisoning? P. Carr-White.

28. **Mycetoma.**—This has usually been considered a local disease, but Maitland gives facts and cases which seem to indicate that in many cases it becomes complicated with secondary centers of disease due to transmission of diseased particles along the lymphatic vessels.

31. **Malaria.**—Following the suggestion that there can be secondary infections aiding in producing what is called malarial cachexia, Rogers has investigated the pigmentation of the viscera, and leucocyte variation in these cases. He calls particular attention to the leucocyte changes in malarial cachexia and their diagnostic importance, the phagocytes becoming so gradually reduced in the chronic forms of malaria strongly suggesting a persistent fight between them and the parasites, and he thinks our efforts should be directed to the increase of the white corpuscles, especially the polynuclears, while giving quinin hypodermically. The great destruction of polynuclears will account for the frequency with which malarial cachexia cases succumb to the invasion of other infections like pneumonia, dysentery, phthisis, etc.

32. **Antivenene.**—Carr-White has experimented on dogs with Calmette's antivenene and finds very little profit from its use in cobra poisoning. In most cases of snake bite the species is not known, but he was most careful in his experiments to make sure as to this point. He thinks it is possible that the special antivenene of Calmette is not directly applicable to producing immunity to the Indian cobra. The question whether we will have to use different antivenenes for each kind of poisonous snake bite would seem to complicate treatment, but there appears to be no reason why antivenene for each division of poisonous snakes (colubrine and viperine) should not be used.

Journal of Tropical Medicine (London), December 1.

33 Adult Form of Filaria Demarquali. C. W. Daniels.

Annales de Dermatologie (Paris), October.

34 *Des gangrènes multiples et primitives de la peau (skin). Carle.
35 Le durillon (callosity) rétro-malleolaire de la femme. Belot.

34. **Primary Multiple Cutaneous Gangrene.**—Carle analyzes the few cases of this affection that have been published and one he has had occasion to observe during the last two years. In all there was a history of some preceding traumatism in exceptionally robust persons, a burn or scald, a cut or the sting of some insect. The affection commenced at several points at once, the patches of efflorescence separated by long distances. The course is by recurring "pushes," which may be local or diffuse. The infectious character of the affection is established by the fever, headache, inflammation and suppuration of ganglia and glands, contagion by auto-inoculation, and erysipelatous condition of the face which accompany the exacerbations. In two cases recovery was complete in two months; in the others the attacks recurred indefinitely, but the general health did not suffer much, although Carle's patient has lost more than thirty pounds in a year and a half. He gives cuts of the patches on back and arms of his patient.

Annales des Maladies des Organes Gen.-Urin. (Paris), xx.

36 (No. 7.) *Contribution à l'étude de l'anatomie macroscopique de la prostate hypertrophiée. J. Albarran and B. Motz.
37 *Necrose spontanée et hémorrhagique du testicule sans torsion du cordon spermatique. Mauclaire.
38 *De l'intervention chirurgicale dans les néphrites médicales. A. Pousson. (Commenced in No. 5.)
39 *Les urines des 2 reins (kidneys), recueillies séparément avec le diviseur vésical gradué. F. Cathelin.
40 104 Operations de calculs de la vessie (bladder). M. Christovitch (Salonica).
41 (No. 8.) Taille perineale et prostatectomie. F. Legueu.
42 L'orchite des prostatiques. E. Desnos and Minet.
43 (No. 9.) Laceration of Bladder Consecutive to Fractures of Pelvis. E. Jouon.—Des déchirures extrapérineales de la vessie consécutives aux fractures du bassin.
44 *Greffes (grafts) et transplantations du testicle. Application au traitement de l'ectopie testiculaire. Mauclaire.
45 Leg Support for Perineal Operations. E. Loumeau.—Porte-jambes pour opérations périneales s'adaptant à toutes les tables et à toutes les inclinaisons du tronc.
46 (No. 10.) Anatomy of Prostate and Bladder in the Aged. G. A. Iastreboff.—Quelques particularités sur les caractères microscopiques de la prostate et de la vessie des vieillards.
47 Prostatectomie périnéale. Technique et instrumentation. P. Delbet.
48 De l'emploi thérapeutique de l'adrénaline dans les voies urinaires (in urinary passages). J. M. Bartrina.
49 Le diagnostic des calculs du rein (kidney) par la radiographie. J. Verhoogen.
50 (No. 11.) Contribution au traitement des affect'ons des testicules et de leurs annexes. J. Zabludowski.
51 *Extirpation intracapsulaire de la prostate hypertrophiée. Rydygier.
52 Report of French Congress of urology.

36. **Macroscopic Anatomy of Prostate.**—Albarran's article describing the conditions that prevail in an enlarged prostate, is illustrated with forty-six cuts.

37. **Spontaneous Necrosis of Testicle.**—Senile gangrene, or apoplexy of the testicle is usually due to torsion of the spermatic cord, to infection, to phlebitis and thrombosis or to obliterating endarteritis of the spermatic artery. In the case of spontaneous and hemorrhagic necrosis reported by Mauclaire in this communication, the last-mentioned was evidently the cause of the lesion.

38. **Surgical Intervention in Medical Nephritis.**—Pousson states that he has operated eight times on 6 patients with chronic nephritis. Two were in the last stages of Bright's disease and have died. The others were remarkably improved and a complete cure can be claimed for at least one case in which nephrotomy and then nephrectomy were performed more

than two years ago. He tabulates the details of 27 published cases in which one or both kidneys were operated on. The mortality was nil. The fact of the comparative frequency of the restriction of the lesion to one kidney is a potent argument in favor of operative intervention. Both kidneys can be operated on at the same time or after an interval without danger and with great possible benefit. An operation on one kidney frequently restores the functions of its mate, even if the anatomic lesions do not retrogress.

39. **Bladder Urine Separator.**—Cathelin's instrument for collecting the urine from each kidney separately without catheterization of the ureters was described in THE JOURNAL of July 19, 1902, p. 173. The present article is profusely illustrated. Further experience is confirming the great value of this "intravesical divisor." (See also THE JOURNAL of November 8, p. 1211.)

44. **Engrafting Atrophic Testicle on Sound Mate.**—Mauclaire has thus operated on 9 patients, and the results have been highly satisfactory except in the case of a boy of 10. The other patients were adults. He assumes that some primary malformation in the vessels of the testicle is the cause of the lack of normal development. By bringing the raw surfaces of the two testicles in close contact and suturing them in a single envelope, the two organs grow together. He illustrates his technic, which consists in a lozenge-shaped incision in the tunica albuginea on the inner aspect of each testicle. In the case of the boy the ectopic testicle had not descended below the outer ring and the grafting of the sound testicle on it did not improve conditions to the anticipated extent.

51. **Intracapsular Extirpation of Enlarged Prostate.**—Rydygier formerly advocated intracapsular enucleation, but found that it exposed to the danger of involuntarily opening the prostatic urethra. This can be avoided by resection of the prostate, instead of enucleation, leaving the part near the urethra intact. His method, therefore, now is intracapsular resection through a median perineal incision, and the results he has attained corroborate the advantages of this intervention.

Archives de Neurologie (Paris), xiv, 82-83.

53 Contribution à l'étude de la pathogénie des idées délirantes fondamentales, des idées directrices, et des obsessions; de leurs rapports dans les délires vésaniques. A. Paris.
54 Contribution à l'étude de l'idiotie morale et en particulier du mensonge (lying) comme symptome de cette forme mentale. Bourneville and Boyer.

Bulletin de l'Acad. de Med. (Paris), November 18 and 25.

55 (No. 37.) *Competition for the Audifred Tuberculosis Prize.
56 *Note sur un procédé d'extirpation du rectum, par la voie abdominale-perinéale, avec abouchement consécutiff de l'S iliaque à l' anus; conservation du sphincter et du canal anal. Durest.
57 (No. 38.) Inauguration de l'hotel de l'Académie.

55. **Competition for the Audifred Prize.**—As THE JOURNAL has frequently mentioned, the Paris Académie de Médecine has an endowment representing an annual income of about $5000, which is awaiting the person who shall discover a sovereign remedy for tuberculosis. Nine communications were received in competition for it this year; six were evidently by unscientific writers. One summarized his views in the phrase, "Cool the abdomen"; another recommended consumptives to drink diluted carbolic acid; the others merely referred the Academy to persons cured by the writer's method. Three communications were from scientific competitors: Dumont described the practicability of establishing winter sanatoriums in an accessible portion of the Sahara. Bezançon and Griffin described their favorable experiences with blood gelose as a culture medium for the tubercle bacillus. V. Wachter advocated a method of treating tuberculosis by inhalation of ethylboric ether. This becomes decomposed on contact with the mucous membranes into alcohol and boric acid, and thus allows the latter to reach the mucosa very finely divided. His inhalator, designed for the purpose, is ingenious, and the results attained are very promising according to his description.

56. **Extirpation of the Rectum Without Necessity for Artificial Anus.**—Duret detaches the rectum through an abdominal incision and removes the detached intestine through a vaginal or perineal incision. He then draws down the afferent loop of intestine and sutures it directly to the anus. He describes two cases of extensive cancer of the rectum treated in this way. The patients died from their cachexia or an intercurrent cause, and at the autopsy the perfect success of the intervention was determined. He announces, therefore, that it is possible to fasten the omega loop directly to the anus without danger of gangrene or other disturbance.

Bulletin Medical (Paris), July to November 19.

58 (No. 58.) Les syphilides secondaires atypiques. A. Renault.
59 (No. 67.) Poids (weight) et robusticité. H. Mackiewicz.
60 (No. 68) Sur les accidents de travail. C. Remy.
61 (No. 69.) Les injections thérapeutiques dansle traitement de la syphilis. Leredde, Pouchet and Lafay.
62 Préparatifs (preparations) d'une opération à domicile. Pouchet.
63 (Nos. 71 and 76.) L'ophthalmologie dans la pratique journaliére. Chevallereau.
64 (No. 72.) Sur la psychologie des tuberculeaux. L'optimisme. C. Legrand.
65 (Nos. 73 and 81.) La rhinopharyngologie dans la pratique journaliére. A. Malherbe.
66 (No. 74.) Report of the Belgian Congress of Surgery.
67 (No. 77.) Fat Necrosis. P. Gallois.—La nécrose de la graisse abdominale.
68 (No. 78.) Etude de l'albuminurie et de la glycosurie dans la paralysie générale. M. de Montyel.
69 (No. 79.) L'ecthyme et l'impetigo de Bockhardt. Balzer.
70 (No. 82.) La présentation du siége decomplété; mode des fesses (pelvic presentation). Maygrier.
71 (No. 83.) Sur la possibilité d'un programme internationale dans l'étude de la psychiatrie. J. Roubinovitch.
72 (No. 86.) *Le practicien et l'oxyde de carbone; traitement de l'intoxication. Le Gendre.
73 (No. 89.) Conception nouvelle et etiologie de l'hystérie. L'origine psychique des crises d'hystérie générales et locales. Bernheim.
74 (No. 90.) Des indications op. dans le cas de spina bifida. Kirmisson.
75 (Nos. 91-92.) La médication ferrugineuse. Gilbert.

72. **The Practitioner and Carbon Oxid.**—When the general practitioner is summoned to a case of intoxication from carbon oxid the first measure is to carry the patient in a horizontal position into fresh air, then commence artificial respiration and traction of the tongue, with flagellation with a towel dipped in cold water. Rubbing with alcohol is also useful, but the main point is to keep up the artificial respiration and tongue traction for an hour and more, until the respiration becomes sufficiently deep and regular for oxygen to be inhaled. Ascending electricity may then be applied, if convenient, the positive pole at the anus and the negative in the mouth. In exceptional cases transfusion of blood may be a valuable adjuvant. When natural breathing is re-established the patient should be put to bed and the tendency to hypothermia combated while careful watch is kept for the reappearance of symptoms. The victim of carbon oxid intoxication looks and staggers like a drunken man. The weakness of the muscles explains the inability to escape from the room when the symptoms attract attention. The subject falls if able to rise to his feet. The after symptoms are sounds in the ears, rebellious insomnia, vertigo, tremor and even delirium. Amnesia may be absolute. Glycosuria from 6 to 15 gm. in the twenty-four hours may appear in fifty to sixty minutes after the first intoxication, and serious lobular pneumonia may rapidly develop. Nervous, vasomotor or trophic troubles may appear after a period of apparent recovery. The vasomotor disturbances are liable to be patches of erythema or nodosities which ulcerate and scab over, gingivitis, ulceration of tonsils, or unilateral edema of leg or thigh. The nervous disturbances may be a generalized or localized neuritis, neuralgic or paralytic. The paralysis may be due to an arteritis or focus of softening in the brain. It developed in Poelchen's case eight days after apparently complete recovery. The patient was 37 years old. There may also be hemiplegic neuritis, toxic hysteria or sclerosis in patches due to arteritis entailing sclerotic foci. The results of slow intoxication may be mistaken for chlorosis, hysteria, neurasthenia, "petit Brightisme," or the prodrome of softening of the brain. In examining the cadaver, sections of the muscles will sometimes give the characteristic band in the spectrum after all the carbon oxid has vanished from the blood. It may also be detected in the blood accumulating around a wound or contusion where it does not feel the effect of the oxygen in the blood. As a general rule it may be assumed that the greater the individual demand for oxygen the sooner the victim suc-

cumbs. The bird dies before the dog, while the frog does not seem to be at all affected. The child succumbs before the adult and the robust man before the women and aged. Prognosis should be guarded until two months have elapsed.

Revue de Laryngologie (Bordeaux), September to December.

76 (No. 40.) *Traitement des tumeurs malignes primitives de l'ethmoide. E. J. Moure.
77 (No. 41.) *La bronchoscopie. G. Killian.
78 (No. 43.) Rapports de l'apophyse unciforme avec les cellules ethmoidales et le méat moyen. J. Mouret.
79 (No. 46.) Contribution à l'étude de la syphilis des fosses nasales. P. Brunel.
80 (No. 47.) Réaction galvanique de l'auditif. Sa valeur négative au point de vue du diagnostic. F. Chavanne.
81 *La technique des injections de paraffin solide. Eckstein.
82 (No. 48.) Contribution à l'étude des blessures de l'oreille (wounds of the ear) par balles de revolver. Blanchard.
83 Polymorphisme du chancre syphilitique de l'amygdale (tonsil). Valeur du symptome "dysphagie" à la période primitive de la syphilis. Bellissen.

76. **Treatment of Primary Malignant Tumors of the Ethmoid.**—Moure describes a simple and easy way of obtaining access to the ethmoid. He incises the soft parts of the nose from the brows to the septum, sufficiently to one side of the median line to preserve the septum intact. He then incises the bony framework of the nose on the median line and on one side, the latter incision gradually sloping slightly toward the median line below. This allows the removal of an oblong piece, which affords ample access to the regions below, while enough of the framework is left to maintain the shape of the nose. He describes and illustrates a typical case.

77. **Direct Bronchoscopy.**—Killian's bronchoscopy has been mentioned at various times in THE JOURNAL. The present description of it is profusely illustrated, including a cut of a phantom bronchus for practice.

81. **Technic of Paraffin Prothesis.**—Eckstein proclaims that the paraffin can be kept from hardening in the syringe by ejecting two or three drops after it is filled, and aspirating the same amount of hot water. He also has found it necessary sometimes to scrape out a little of the paraffin if it spreads beyond the desired point. This is easily done and the scar of the minute incision is invisible.

Semaine Medicale (Paris), November 5 to December 3.

84 (No. 45.) La lutte contre la tuberculose, d'aprés les travaux de la Conference de Berlin. L. Cheinisse. (Commenced in No. 44.)
85 L'insuffisance de la docimasie pulmonaire hydrostatique dans les cas où il existe des germes dans la cavité utérine.
86 (No. 46.) La splenomegalie chron. avec anémie et reaction myeloide du sang (of the blood). P. Emile-Weil and A. Clerc.
87 Report of XIth Italian Congress of Internal Med. (Commenced in No. 45.)
88 (No. 47.) Valeur et indications de l'intervention chirurgicale dans la lithiase vesiculaire. F. Lejars.
89 (No. 48.) *L'aortite abdominale. Teissier.
90 (No. 49.) *Sur l'opportunité d'une intervention chirurgicale dans la néphrite chronique. R. Lépine.
91 *Un nouveau reactif des pigments biliares dans l'urine. F. Baudouin.

89. **Abdominal Aortitis.**—Primary abdominal aortitis is rare, but chilling of the abdomen has been known to produce it. It is usually propagated from an inflammatory process in the upper portion of the vessel or in some neighboring organ. The characteristic symptoms are the pain that can be induced at the aorta and iliac arteries, the displacement of the aorta and its mobility. The pain is localized in the wall of the vessel and may be traced along the iliac arteries sometimes to their roots. It may be so severe as to prevent any exploration of the region, but when the aorta can be taken up between the fingers it will be found abnormally increased in size and less elastic. Distension occurs more easily, but the lessened elasticity prevents resumption of the former caliber and the result is a lengthening of the vessel. As it can not stretch lengthwise, it curves on itself, forms a loop and this usually slips into the left iliac fossa. At the same time it becomes more movable. There are also a number of accessory symptoms such as contraction of the rectus which may be so pronounced in some cases as to simulate a tumor in the epigastrium, stomach troubles and vomiting, neuralgia of the diaphragm, the impossibility of lying in a physiologic attitude, the character of the arterial pulse in the epigastrium, sometimes accompanied by a reflex pulse exclusively located in the muscular wall of the abdomen. and certain disturbances in the abdominal circulation causing local elevation of temperature on slight exertion, when the mouth and axillary temperature show no change. A very important sign is hypertension in the dorsal artery of the foot, when compared with the radial tension. This indicates almost infallibly some irritation in the subdiaphragmatic arteries. On the other hand, when there is hypertension in the abdominal arteries but hypotension in the dorsal artery, the disturbances in the abdominal circulation are of a purely reflex order or are due merely to a neurasthenic condition. Teissier has been collecting data on this subject and proclaims that this modification in the peripheral blood pressure is almost pathognomonic. He calls it "le signe de la pédieuse." In all his patients there was an increase of 2 or 3 cm. of mercury in the blood pressure of the dorsal artery, while physiologically it is 20 mm. below the radial pressure. The complications of abdominal aortitis include besides the multiple dyspneic or cardiac reflexes and gastric and intestinal disturbances, a possibility of intestinal hemorrhages, nephritis from propagation of the inflammation, or actual infarctus or rupture of the aorta. Resolution of the inflammation is the rule, at least in the recent cases. The hypertension in the dorsal artery gradually subsides as recovery progresses. Treatment is principally by rest in bed to immobilize the artery and prevent displacement, and careful dieting to avert digestive disturbances which might add to the erethism of the abdominal circulation by reflex action and induce pulsation in the celiac trunk. A strict milk diet—when it is tolerated—frequently answers these indications. Revulsion is indispensable. Leeches have proved useful during the acute stage. During the subacute periods a blister or mustard plaster may suffice. If the affection shows a tendency to become chronic, small blisters frequently repeated, or cauterization with a conical cautery may be beneficial. Measures are also needed to soothe the abdominal reflex excitability and hyperesthesia. This can be accomplished with belladonna salve or conium plaster, application of compresses, injections of hot water or injections of ammonium bromid, which is an excellent remedy for the circulatory reflexes originating in intestinal irritation. Iodin and tannin will promote internal resolution and calomel may be useful both internally and in local applications.

90. **Surgical Intervention in Chronic Nephritis.**—Lépine describes experimental research on three dogs in which decortication of the kidney after venous stasis had been induced did not materially increase urination. He does not believe that capsular nephrotomy or decortication would be of much benefit in the clinic in similar cases. He would restrict it to painful unilateral congestion rebellious to medical measures, or to anuria consecutive to a congestive attack. Exposure of the kidney and decortication are mild procedures in a sound animal but are much more serious when the organ is diseased. It is important to examine the cadaver of a person with Bright's disease who has been treated by decortication, in order to learn the exact status of the intervention and its results.

91. **New Reagent for Biliary Pigments in Urine.**—Baudouin states that a solution of fuchsin added to urine produces an orange stain in case it contains bile pigments. The fuchsin must be in a .5 per cent. solution and two drops are added to a test tube one-third full of the filtered urine.

Archiv f. Gynaekologie (Berlin), lxvii, 2.

92 Ueber Myomotomie und retroperitoneale Behandlung des Stieles (treatment of pedicle) nach Chrobak. G. Heinricius.
93 *Ueber das primäre Chorio-Epitheliom ausserhalb des Bereiches der Elabsiedlung (outside region of ovum implantation). W. P. Z. Kissell.
94 Ueber die Versio mit sich anschliessender Extraction beim engen Becken (contracted pelvis) auf Grund von 320 Fällen. Krull.
95 Zur Etiologie congenitaler Klumpfüsse (club foot) und Gelenk- (joint) Contracturen. Keller.

93. **Chorio-Epithelioma Outside of Region of Ovum Implantation.**—Kissel reviews 11 cases, 1 personally observed. Only 4 were fatal. In 7 the vagina and always the anterior wall was affected; in one the brain, in one the uterus and other internal organs, and in one the lungs. The deportation of the particles of chorionic epithelium may occur by way of veins or arteries, and has been observed even during the course of the pregnancy. The possibility of spontaneous arrest

and healing, even for a chorio-epithelioma with metastases, should impose caution in regard to assuming its malignant nature. In the personal case reported, exhibiting multiple chorio-epitheliomata in vagina and lungs, the lesions in the lungs healed spontaneously after those in the vagina had been excised. In a second series of 6 cases all were fatal, in 4 from recurrence after operation. The vagina or labia were involved in 5. In one the labium and lungs were the seat of the lesion, and in another the epitheliomata were found in the right and left heart, and in the small arteries of the brain, kidney and intestines. The uterus and adnexa were exempt. In this case an old interstitial myocarditis evidently favored the settling of fragments brought to the heart by way of the uterine veins.

Centralblatt f. Chirurgie (Leipsic), November 22 and 29.

96 (No. 47.) *Die Eröffnung des Sinus cavernosus bei Thrombose. Voss.
97 Ein neues Bauch- (abdominal) Speculum. G. Boegel.
98 (No. 48.) *Vereinfachtes Verfahren (simplified process) Zur Stereoskopie von Röntgen-Bildern. K. Bartholdy.
99 *Proposal for Simplication of Suture in Applying the Murphy Button. F. Rehm.—Vorschlag zur Vereinfachung der Naht bei Anwendung des Murphy-Knopfes.

96. **Opening of the Cavernous Sinus in Case of Thrombosis.**—Voss opened up the cavernous sinus in a recent case and recommends his technic, although the patient succumbed to the progress of his meningitis. The intervention described allows ample drainage. He approached the Gasserian ganglion, and the first and second branches of the fifth nerve, which were his guides to the sinus, by means of a flap made according to Lexer's directions. It requires temporary resection of the malar bone. After exposure of the Gasserian ganglion and of the first and second branches, he opened up the sinus with the knife, and inserted a drain tube wrapped in gauze, after which the wound was sutured. The autopsy showed that the sinus had been opened for 6 to 8 mm. In case the thrombosis originates in the orbit, the intervention can be modified as he describes to open into it. He believes that this procedure will be found useful not only for exposing a thrombosed sinus but also for the evacuation of the rare extradural abscesses at the apex of the pyramids. Further experience will establish whether it is possible to save the patients by this means, and also whether the intervention on the sinus will have to be bilateral.

98. **Simplified Process for Roentgen Stereoscopy.**—Bartholdy states that fine stereoscopic images can be seen by using ordinary 18-degree prism glasses in the stereoscope and the original plates, not a reproduction or enlargement of them. The simple apparatus consists merely of a sliding somewhat pyramidal chamber fitted to hold the original plates at the larger end. As soon as the plates are dry they are ready for inspection, and they can even be used before they are dry.

99. **Simplification of Suture in Applying Murphy Button.**—Rehm has worked out on dogs a method of suturing the Murphy button in place which materially shortens the time. One part of the button is inserted in the incision in the intestine and pressed close against one end of the wound. The incision below is drawn together by a single buttonhole suture close to the button, which is thus held firmly. If the incision is unduly long two or more sutures may be required, but if just the right length, one is sufficient. In an end-to-end anastomosis the button is inserted in the small incision and a buttonhole suture—a single stitch—taken each side of the button. In the experiments on two dogs the button was passed after four days, and when dissected, the bowel was found in perfect anastomosis with a smooth cicatrix.

Muenchener Med. Wochenschrift, November 25.

100 Ueber Phagocytose, Synthese und andere intrazelluläre Vorgänge. J. Arnold.
101 *Operation der Fibromyome des Uterus. A. Hegar.
102 *Die Operative Behandlung der Lungen-Tuberculose. A. Landerer.
103 *Ueber Spirometrie R. v. Hoesslin. Ibid. A. Gebhardt.
104 *Explanation of Action of Atropin in Ileus. J. Pal.—Zur Erklärung der Darmwirkung des Atropin mit Rücksicht auf dessen Anwendung beim Ileus.
105 Zur tuberculöse Lungen-Phthise im Säuglingsalter (infancy). N. Hohlfeld.
106 Ueber den therapeutische Wert der Bismutose. H. Starck.
107 Paraldehyd und Skopolamin (Hyoscin) als Schlaf- und Beruhigungs-mittel (narcotic and sedative) für körperlich und geistig Kranke. Bumke.
108 Zur Gelatin-Behandlung bei Melaena neonatorum. E. Oswald.
109 Beitrag zur Casuistik tödtlicher Magenblutungen (fatal gastric hemorrhages). M. Tiegel.
110 2 Fälle schwerer Otitis media acuta purulenta durch Schneeberger (snuff). W. Schroeder.
111 Hypertrophie der Prostate und galvanokaustische Behandlung nach Bottini-Freudenberg. Bierbaum. (Personal experience.)
112 Use of Small Rubber Rings to Relieve Pressure on Painful Points in the Feet. Bettman.—Ueber die Verwendung kleiner Gummiringe zur Druckentlastung schmerzhafter Punkte am Fuss.
113 Venereal Diseases in the Marine. C. Graeser.—Ueber Seemannsordnung und Geschlechtskrankheiten.
114 Practising Among the Chinese. Perthes.—Erfahrungen in der ärztlichen Praxis bei Chinesen.
115 *Ueber Erfolge mit Tuberkulin-Behandlung nach Goetschschem Verfahren. W. Roemisch. (Commenced in No. 46.)

December 2.

116 *How Should We Narcotize? O. Witzel.—Wie sollen wir narkotisieren?
117 500 Chloroform-Narcosen in der gynaekologischen Praxis. W. Evelt.
118 Selbsttätiger Ether-Flaschen-Verschluss (automatic stopper) für die Narkose. A. Kurrer (Lorch).
119 Digestion of Albumin. E. Heinrich.—Untersuchungen über den Umfang der Eiweissverdauung im Magen des Menschen, auch bei gleichzeitiger Darreichung von Kohlehydraten.
120 Bericht über einen neuen Fall von syphilitischer Magengeschwulst (gastric tumor). Max Einhorn.
121 Correction of Bone Deformities. K. Port.—Ueber die Ausgleichung von Knochendeformitäten.
122 *Kombinierte Behandlung von Lungen-Tuberculose mit Calcium und Tuberculin. Rudolph.
123 The Saratoga Meeting and Trip. Carl Beck (New York).—Medicinische Streiflichter aus America.

101. **Operation for Uterine Fibromyomata.**—Hegar advocates vaginal total extirpation, and has thus removed tumors that extended above the umbilicus. In some cases he has prepared the uterus for extirpation by working through the vagina, and then removed it finally by abdominal section. He does not believe in retaining the uterus in case of large tumors, as its vitality is compromised, and it is possible to ligate the vessels as a preliminary measure and thus obviate hemorrhage, when there is no care as to its further function.

102. **Successful Operative Treatment of Lung Tuberculosis.**—Landerer proclaims that great benefit can be derived in advanced cases of tuberculous cavities, from resection of parts of several ribs. The cavity is not opened, and the aim of the intervention is merely to mobilize the wall of the chest over the lesion and by resecting the ribs to allow the wall to contract and reduce the size of the thoracic cavity. The lung is thus forced to contract also and is not able to expand to its former capacity. This favors the healing of the tuberculous lesion within. He describes in detail 6 cases on which he has thus operated. All were what is called hopeless cases, but the results of the operation were the complete cure for the time being of one, and probably of another; two others were very much improved, and the fifth patient was operated on recently. This method of treatment is particularly applicable for lesions in the lower lobe, which for some unknown reason offer such an unfavorable prognosis that the sanatoria usually refuse to receive them. Consequently Landerer advises this operation in such cases even in the early stages. It is surprising how well the consumptives bear the operation. The benefits are apparent in the course of two or three weeks. Chloroform narcosis is well tolerated, but loss of blood must be guarded against. The most appropriate cases are those with destructive processes which are stationary or slowly progressive. He attributes a large measure of his success to the fact that he always precedes and follows the operation with cinnamic acid (hetol) treatment, whose effect in promoting the shrinking and healing of tuberculous lesions has been thoroughly established. The operation in one case included resection of 4 to 15 cm. of seven ribs, the second to the eighth, reached through a right-angled incision in the rear side wall of the thorax, drawing the scapula forward. In the second case a triangular piece was removed, including 3.5 cm. of the first rib; 5.5 cm. of the second and 7.5 cm. of the third. In another patient, about 70 cm. of ribs were resected from the ninth to the fourth rib, but the cavity involving the entire lower lobe was too extensive for the possibility of complete healing. The patient's condition is somewhat better than before the intervention. In another case the intervention was an *indicatio vitalis*. Large pieces

were resected from the ninth to the fifth ribs, from the rear on the left side to the axillary line, the patient in a position to prevent pus from flowing into the sound part of the lung. There was no coughing nor expectoration afterward and the abscess had to be evacuated later from without, after which the patient rapidly improved and the benefit derived has been permanent. Landerer used the morphin-chloroform-oxygen narcosis in all. He adds also the history of three cases operated on several years ago by draining the cavity. One patient still has a fistula; the others were practically moribund when operated on.

103. **Spirometry.**—Hoesslin and Gebhardt have found that the spirometer findings vary with the same individual under otherwise similar conditions unless the air breathed is warmed to body temperature and calculated for the state of the barometer. They illustrate an improved spirometer which warms the air, and propose formulæ to remedy the defects of the Hutchinson method, according to which the vital capacity of an individual differs to a marked extent as he is at the level of the sea or at Davos, for instance, although all other conditions are the same.

104. **Explanation of Action of Atropin in Ileus.**—Pal has learned from research on dogs that atropin has an elective inhibiting action on the nerve terminals of the vagus and splanchnicus, while the muscles of the walls of the intestines and the ganglia which control peristalsis are not affected by it. As atropin thus affects only certain ganglionary apparatus for the intestines, it should be applied in those cases alone in which the elimination of these ganglia is required.

115. **Successful Treatment of Tuberculosis with Tuberculin.**—Roemisch has followed Goetsch's directions in regard to the administration of tuberculin—waiting and adapting the doses to avoid all febrile reaction—and his experience has fully confirmed the successes reported by Goetsch. He thinks, however, that besides the febrile, extremely nervous patients should also be excluded. He found the treatment effective even in quite advanced cases which had come to a stillstand as the result of sanatorium and other treatment, but which could not be forced to further improvement. In all cases in which too rapid breaking down of extensive diseased tissue might prove harmful, the use of tuberculin is not advisable. The best results are attained in cases in which the lesions have partially cicatrized.

116. **How Shall We Anesthetize?**—Witzel makes a practice of securing thorough disinfection of mouth, nose and air-passages as a preliminary to any operation. Inhalation of steam from saline solution or of turpentine he considers a most important measure for the prevention of ether pneumonia and ether bronchitis. He has the patient recline on the table with the head lowered at an angle of about 45 degrees. This allows free egress to the secretions that accumulate in the air-passages, while there is no hypersecretion in the trachea or larynx. The patient is covered with warm cloths held in place by long bags drawn up over arms and legs, so that he will not be chilled when the window is opened to ventilate the room after the operation. He is then told to count from 200 backwards, slowly and breathing deep between the numbers. Chloroform is given at first, and then ether, only a drop of either at a time. When the operation is completed the patient is carried with head still low to his bed, and allowed to sleep with the window open. He exhales ether for hours, but the fresh air, with rinsing of the mouth, will certainly diminish the tendency to vomit. If vomiting does occur the stomach is rinsed on the supposition that some ether must have been swallowed. He allows his patients to get up remarkably early after even severe operations, the evening of the same day after amputation of the upper arm, for instance, the next day after ablation of a carcinoma of the mamma, etc. All are instructed and trained beforehand to breathe deep ten to twenty times in the half hour by the clock. If the deep breathing causes pain, morphin may be needed. His experience with morphin scopolamin narcosis in 3 cases anesthetized by Korff himself, was unfavorable. One patient suffered from weak heart action afterward for days, and another succumbed to sepsis, which he might have resisted under other circumstances.

122. **The Lime-Tuberculin Treatment of Tuberculosis.**—Rudolph argues that calcification is one of Nature's means of combating invasion by a foreign body. Tuberculin given by the "Etappen" method, that is, in repeated courses, combined with administration of lime water per os and rectum, is a combination that has proved remarkably effective in his hands in the treatment of advanced tuberculosis. He reports 5 cases and the results challenge attention, although none have been controlled by autopsy findings. The lime is continued in the intervals between the courses of tuberculin, to promote calcification as much as possible.

Therapeutische Monatshefte (Berlin), November.

124 *Sulphur in Typhoid. J. Woroschilsky.—Anwendung von gereinigten Schwefelblumen bei der Behandlung des Typhus abdominalis.
125 Ueber die Behandlung der Lungen-Tuberculose mit Geosot (Guaiacolum valerianicum). A. Kühn.
126 Ueber Strichförmiges (linear) Eczem im Versorgungsgebiet des Nervus cutaneus brachii externus im Anschluss an eine Verletzung. Orlipski.
127 How to Testify in Regard to Functional Capacity of Hand After Accidents, etc. G. W. Schille.—Wie begutachtet man die Gebrauchsfähigkeit der Hand?
128 Beiträge zur Eisen- (iron) Theraple unter bes. Berücksichtigung der Eisen-Mangan-Präparaten. Jung.

124. **Sulphur in Typhoid Fever.**—Woroschilsky has been giving 1 to 1.25 gm. of sulphur depuratum every two hours in a large number of cases of typhoid for the protecting coating which it forms in the intestine. It has also an antiphlogistic and antiseptic action, but these are subordinate. The coating formed by the sulphur prevents irritation and injury of the intestinal walls from the ingesta. The rapid subsidence of the diarrhea and other symptoms testifies to the great benefit derived. He cites tests on healthy men who took 22 gm. of sulphur a day without injury and no disturbance of either appetite or digestion. Kobert states that 90 per cent. of the sulphur ingested passes unaltered through the system.

Brazil Medico (Rio de Janeiro), July to November.

129 (No. 28.) Pain from the Medical Standpoint. M. Pereira.—A dor no ponto da vista medico. (Commenced in No. 26.)
130 *The Pulse in the Insane. H. Roxo.—Do pulso nos alienados.
131 Discussion of Value of Strychnin in Yellow Fever. Contradictory Opinions by Members of Local Medical Society.
132 (No. 29.) *Signal para o diagnostico da ankylostomiase. N. Gurgel.
133 (No. 31.) *Dos accidentes em sero-therapia. O. G. Cruz. (Commenced in No. 29.)
134 A proposito da Ainhum. J. Moreira.
135 (No. 32.) Electro-Therapy of Lepra. F. Pires.—Do emprego das correntes de alta frequencia e grande tensao na lepra anesthesica.
136 (No. 34.) *Pathogenia e Therapeutica da febre amarilla (yellow fever). M. Guimaraes.
137 (No. 36.) Vibration Massage. Werneck Machado.—A sismotherapia.
138 (No. 37.) Differentiation of Sporadic Yellow Fever. A. Ferrari.—Formas clinicas da febre amarilla observadas no hospital de S. Sebastiao durante o invierno.
139 (No. 38.) Relations Between Eye and Ear Affections. S. Fialho.—Relacoes entre as molestias do ouvido e as do olho. (Commenced in No. 27.)
140 (39) Notas sobre a filaria e a tenia no homem (in man). H. Monte.
141 (No. 40.) *O pulso e a tensao arterial na febre amarilla (yellow fever). A. Ferrari.
142 Benefit from Brewer's Yeast in Case of Epilepsy. N. de Andrade.—O levedo de cerveja no tratamineto da epilepsia.
143 (No. 41.) Sobre a propagaçao do impaludismo. L. Sobrinno.

130. **The Pulse in the Insane.**—Roxo proclaims that the sphygmographic tracings may be able to differentiate certain dubious cases of mental affections. In laborious research on 130 insane patients he found a very pronounced difference in the pulse between certain classes of affections. It was only exceptionally normal. He reproduces the tracing of a typical example of each class. In mania the pulse was slow, averaging in 6 patients 66 to the minute. In melancholia the pulse was polycrotic and slower than normal, averaging 62 in 7 patients, but otherwise regular. The average in 14 patients with mental confusion was 82, the vertical line of the wave was very pronounced and the waves were polycrotic and very irregular. In 9 cases of dementia the average was 78 and the sphygmogram resembled that of arteriosclerosis. In 11 paranoiacs the pulse beat was more rapid than normal, averaging 80. The sphygmogram is peculiar and characteristic in this affection. The

top of the wave very rounded and irregularly polycrotic. In 18 cases of epilepsy the sphygmogram was marked by a short vertical line, frequently irregular, alternating with a dicrotic wave, the beat only 66 to the minute. In hysteria the tracings were very irregular, the beat averaging 76. In 25 alcoholic cases the pulse was within the range of normal rate. The vertical line was very short and the top of the wave frequently flat. The pulse averaged 64 in the cases of cerebral syphilis and 78 in those of systematic psychoses. M. Nery has reported that he found some disturbance in the circulatory apparatus in 93 per cent. of the insane in his experience, but the characteristic differences in the pulse above noted are probably of reflex, vasomotor origin.

132. **A Diagnostic Sign of Ankylostomiasis.**—Gurgel's experience fully confirms the value of the bluish spots on the tongue as a sign of ankylostomiasis. He found them in nearly every one of a large number of patients examined.

133. **Accidents of Serotherapy.**—Cruz compares the accidents from the use of serum treatment at Rio with those reported in Europe and announces that they were identical in kind and occurred in about the same proportion. The minor accidents from antiplague serum made at Rio were digestive disturbances, cutaneous manifestations, adenitis or pain in the joints, muscles, etc. Two of the persons thus affected were physicians, and the disturbances were not sufficient to interfere with their practice, and vanished in the course of a few days. The more serious accidents included high temperature, intense pain, arthralgias, neuralgias, etc., pulmonary phenomena, delirium, prostration and adenitis accompanied with symptoms which suggested the plague. In the case of the wife of a colleague, after two injections of the serum a ganglion became painful, and there was insomnia and agitation, with temperature of nearly 103 F. and chills. A patch of erythema 30 cm. long developed, with urticaria, ecchymoses in the legs, and manifestations in the joints suggesting articular rheumatism. The patient also lost flesh; 42.5 c.c. of the serum had been injected in the course of eight days. The physicians were in doubt as to whether the case might not be true plague, but bacteriologic examination was always negative and the patient rapidly recuperated. A single injection of 10 c.c. in a woman in the seventh month of pregnancy was followed by very high temperature and swelling of glands with intense pain and purpuric patches. All these symptoms vanished by the end of fifteen hours. In another case an erysipetalous patch developed on the abdomen accompanied by fever, pain and swelling of the glands, after two injections of 10 c.c. of the serum. All the disturbances had vanished by the end of the week. Out of the total of 123 persons injected with the serum 58, or 47.17 per cent. exhibited accidents, but only 7 were of a serious character. Adenitis occurred alone or with other symptoms in 18. The serum used was about a month old. The proportion of accidents observed at Frioul was 44.7 per cent., and at Glasgow, 47.3 per cent. Among the incidents which he relates to show the efficacy of preventive antiplague injections is the case of an infected vessel, the Gundulic, which arrived with a case of plague on board. The patient was taken to the hospital and the rest of the crew were treated with the antiplague serum as a preventive measure. No further cases of plague occurred until twenty days had elapsed, when two more sailors exhibited symptoms of the disease. The ship had evidently been infected but the antiplague serum had protected the crew from infection so long as its immunizing effect lasted. This is from eight to fifteen days. After this immunizing effect had worn off, the crew were liable to contract the infection as if they had not been injected. The incident is interesting from the further fact that the two sailors last affected had the dangerous submammary bubo or plague carbuncle, and yet, possibly owing to the influence of the preceding injection, the course of the disease was exceptionally mild. All the serum prepared at the local institute is heated for an hour to 135 F., which destroys the toxic properties inherent in normal serum. No fatal accident has followed the use of antiplague serum anywhere, he concludes, and commends it as a most valuable and indispensable preventive measure.

136. **Treatment of Yellow Fever with Glucosed Serum.**—Guimaraes argues that the symptoms of yellow fever indicate insufficiency on the part of the liver. This commences by depression of the glycogenic function, the key to all the subsequent phenomena, he thinks. He aims to compensate the loss of this function by subcutaneous injection of a mixture of 10 gm. of glucose in 200 c.c. of a 1 per 1000 solution of sodium chlorid. This promotes diuresis, alleviates thirst and strengthens the heart action, as Barker has already established. Guimaraes has tried it hitherto only on moribund patients, but the effects observed encourage its wider adoption.

141. **The Pulse in Yellow Fever.**—Ferrari gives a number of tracings to illustrate the pulse in yellow fever. The ascending line is vertical and rises to a peak at first. The pulse is markedly dicrotic in the two first days, and it is very rapid in proportion to the arterial pressure in the first twenty-four hours, suggesting derangement of the innervation of the arterial apparatus. Another interesting fact is the modification in the arterial pressure after a minimal blood letting. Withdrawal of 40 to 60 c.c. of blood is immediately followed by a drop in the arterial tension, revealing the lack of arterial vasomotor reflex action. The aim in treatment should be to relieve the overtaxed heart by restoring the arterial contractility. In no other disease does the arterial hypotension succeed so rapidly to the exaggerated tension at first. The pulse in a typical case described was 110 and the tension 26 the first day, by the third they were respectively 90 and 16, by the fourth 68 and 12, and the fifth day 88 and 8.

Siglo Medico (Madrid), August to December.

144 (Nos. 2538-2546.) Tratamiento del aborto. A. Pulido Martin.
145 La neurastenia en los pueblos (small towns). T. Valers.
146 *Medicina colonial.
147 Tratamiento de las estrecheces (strictures) uretrales. C. Negrete.
148 *Deontologia medica. S. D. Varona.
149 (Nos. 2547-8.) 2 casos de quiluria (chyluria). G. Tanago y Garcia.
150 (Nos. 2549-51.) Diagnostico de las aneurismas aortices. C. M. Cortezo.
151 *Petition to the King from City Physicians.—El Mensaje al Rey de los médicos titulares.
152 (Nos. 2550-5.) Sanidad publica en Espana y ministerio social de las clases medicas.
153 Transmission de la peste. Report of Spanish Consul at Yokohama.
154 Los idiotas ante los tribunales de justicia. T. Maestre.

146. **Colonial Medicine.**—In this article is reviewed the sanitary work accomplished in Havana by the United States authorities. It cites extracts from Paris papers contrasting the condition before and after the conquest of Cuba, and remarks that the "contrast is a greater blow to the good name of Spain than the defeat at Santiago and more depressing than the treaty of Paris." It also describes the instruction and institutes of colonial medicine in England and France, although as it adds, "the Spaniards have no longer the same interest as formerly in matters pertaining to colonies."

148. **Medical Deontology.**—Varona remarks in the course of his article, which is an appeal for physicians to assert certain rights, "we physicians spend half our life seeing patients, and the other half in lamenting over the conditions that prevail," instead of organizing and working to improve them.

151. **Petition to King of Spain from City Physicians.**—According to the present Spanish law each town has its city physician, who is supposed to look after the public health, but no provision is made as to their appointment, salary, etc., which is all left to the municipal authorities. They have no secure tenure of office and no means of enforcing their recommendations, and this appeal states that the public health thus left at the mercy of the municipal authorities is absolutely disregarded and thousands of lives are unnecessarily sacrified every year. The "médicos titulados," as they are called, have been holding a conference for the purpose of protesting against this state of things, and they formally petition the government to alter the law and have the public health confided to the care of a "cuerpo de sanidad civil" in each town, a board of health appointed by and responsible to the state, to the central government instead of being at the mercy of local politics.

New Patents.

Patents of interest to physicians, November 18 to December 9:

713952. Pasteurizer. A. A. Busch, R. Gull, and T. J. Barry, St. Louis.
713980. Hypodermic syringe. Henry J. Gill, Clonskeagh, Ireland.
713875. Portable stand for supporting and carrying stretchers. Harry C. Hall, Telluride, Colo.
714041. Sterilizer for liquids or fluids. Irvin E. Schoch, Damascus, Ill.
714052. Artificial leg and ankle joint. Sylvester E. Staggs, New York.
714067. Muscle-developer. Eindred Viko, Sioux Falls, S. D.
714124. Body brace. Joel U. Adams, Cincinnati.
714463. Exerciser. Matthew Duffner, Allegheny, Pa.
714477. Strength-testing machine. Henry Haenze, Pittsburg, Pa.
714305. Hernial truss. George R. House, Kansas City, Mo.
714309. Exercising apparatus for straightening the legs. Franz Langel, Cologne, Germany.
714342. Apparatus for treating diseases by vacuum and air pressure. Robert Watson, Washington, D. C.
715010. Hernial bandage or truss. Vincenzo Brocchi, Milan, Italy.
714785. Disinfecting apparatus. B. M. Davis, Los Angeles, and C. E. Cook, Whittier, Cal.
715052. Mouth and nose guard. Margaret B. Goodwin, Denver.
715112. Catamenial appliance. Theresa Minard, Scio, Ohio.
714738. Extracting syringe. Joseph R. Perry, Wilkesbarre, Pa.
714952. Applicator. Willard E. Robinson, Malden, Mass.
714850. Appliance for preventing neuresis. Carl Zimmermann, Heidelberg, Germany.
715331. Truss. Joel U. Adams, Cincinnati, Ohio.
715650. Electrical massage apparatus. Oscar A. En Holm, New York.
715661. Vaccinating tool. Elijah M. Houghton, Detroit.
715290. Device for cleaning hypodermic needles. George Porter, Manchester, N. H.
715426. Suturing instrument. David Schisgal, Vernon, France.
715701. Truss. Milton B. Smith, Holton, Kan.
715612. Wound closing device. Gerard J. Van Schott, Passaic, N. J.

The Public Service.

Army Changes.

Movements of Medical Officers, U. S. Army, under orders from the Adjutant General's Office, Washington, D. C., from Dec. 8 to Dec. 13, 1902:

Andrews, Charles H., major and surgeon, U. S. V., is honorably discharged from the service of the United States, to take effect Feb. 1, 1903, his services being no longer required.

Adair, George F., contract surgeon, U. S. A., is granted leave of absence for one month, to take effect Dec. 1, 1902.

Corbusier, William H., major and surgeon, U. S. A., is granted leave of absence for one month.

Moseley, Edward B., lieut.-col., deputy surgeon-general, U. S. A., is detailed as a member of the Army retiring board to meet at Denver.

Lewis, William F., captain and asst.-surgeon, U. S. A., is granted one month's leave of absence, to take effect when relieved from duty at Fort D. A. Russell, Wyoming.

Robins, Robert P., contract surgeon, U. S. A., now at Philadelphia, will proceed to Fort Niagara, N. Y., and report in person to the commanding officer of that post for duty and by letter to the commanding general, Department of the East.

Navy Changes.

Changes in the Medical Corps of the Navy, week ending December 20:

P. A. Surgeon T. D. Myers, retired, detached from special duty at Naval Hospital, Philadelphia, and ordered to the Navy Yard, League Island, Pa.

P. A. Surgeon E. Thompson, detached from the *Montgomery*, and ordered to duty with the marines at Culebra, W. I.

P. A. Surgeon H. H. Haas, detached from duty at Culebra, and ordered to the *Montgomery*.

Asst.-Surgeon S. S. Rodman, unexpired leave revoked, and ordered to the *Pensacola*.

Surgeon N. J. Blackwood, detached from the *Alliance*, and ordered to the *Chicago*, via steamer sailing December 27.

P. A. Surgeon C. DeW. Brownell, detached from the *Panther* and ordered to the *Alliance*.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the 14 days ended Dec. 18, 1902:

Surgeon C. T. Peckham, granted leave of absence for 14 days from December 23.

A. A. Surgeon P. N. Barnesby, granted leave of absence, on account of sickness, for 30 days from December 10.

Asst.-Surgeon M. J. White, relieved from duty at San Francisco, and directed to proceed to Portland, Ore., and assume command of the service at that port.

Asst.-Surgeon D. H. Currie, to report to Surgeon A. H. Glennan, San Francisco, for assignment to duty.

A. A. Surgeon C. W. Bailey, granted leave of absence for 7 days.

A. A. Surgeon P. N. Barnesby, granted 9 days' extension of leave of absence from December 1.

A. A. Surgeon G. A. Gregory, granted leave of absence for 10 days from November 26.

A. A. Surgeon J. C. Rodman, granted leave of absence for 4 days from December 15.

A. A. Surgeon M. H. Ross, granted leave of absence for 14 days from December 21.

Medical Inspector Agnes Walker, granted leave of absence on account of sickness, for 15 days from December 1.

Pharmacist F. L. Brown, to proceed to Philadelphia, for special temporary duty.

Pharmacist W. F. Schlaar, to report to Assistant Surgeon-General G. T. Vaughan for temporary duty in office for the port of Washington, D. C.

BOARD CONVENED.

Board convened at Boston, Dec. 10, 1902, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Surgeon R. M. Woodward, chairman; Asst.-Surgeon W. C. Rucker, recorder.

REINSTATEMENT.

W. F. Schlaar, reinstated and appointed senior pharmacist, effective Nov. 13, 1902.

PROMOTIONS.

To be pharmacist of the third class: E. M. Holt, C. W. Stephenson, G. W. Iltis, G. A. Morris, M. H. Watters, L. P. Hall, L. C. Spangler, F. Siedenburg, C. Stier.

To be pharmacist of the second class: A. M. Roehrig, J. Achenbach, G. H. Brock, E. S. Maguire, R. H. Gibson, T. V. O'Gorman, F. L. Brown, F. S. Goodman, Charles Miller, C. H. Woods, F. R. Hanrath, S. W. Richardson, J. V. LaGrange, M. McKay, M. Walerius, W. W. Kolb, G. C. Allen, F. H. Peck, Edw. Rogers, F. J. Herty, E. B. Scott, C. Slough, B. E. Holsendorf, L. W. Ryder, M. R. Mason, F. L. Gibson, C. G. Carlton, F. A. Southard, H. E. Davis, R. F. Troxler, J. E. Beck, W. F. Schlaar.

To be pharmacist of the first class: W. F. Macdowell, Henry Gahn, W. L. Stearns, A. M. Roehrig, G. H. Brock, R. H. Gibson, T. V. O'Gorman, F. L. Brown, F. S. Goodman, Chas. Miller, F. R. Hanrath, S. W. Richardson, J. V. LaGrange.

CASUALTIES.

Surgeon John Vansant, died Dec. 12, 1902.
A. A. Surgeon Joseph Charles, died Dec. 11, 1902.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended Dec. 20, 1902:

SMALLPOX—UNITED STATES.

California: Sacramento, Nov. 29-Dec. 6, 3 cases; San Francisco, Nov. 30-Dec. 7, 3 cases.
Colorado: Denver, Dec. 6-13, 9 cases.
Florida: Jacksonville, Dec. 6-13, 1 case.
Georgia: Atlanta, Dec. 3-10, 2 cases.
Illinois: Belleville, Dec. 6-13, 1 case; Chicago, Dec. 6-13, 4 cases; Freeport, Nov. 29-Dec. 13, 3 cases.
Indiana: Indianapolis, Dec. 6-13, 22 cases, 2 deaths.
Maine: Dec. 6-13, Biddeford, 4 cases; Portland, 1 case.
Massachusetts: Dec. 6-13, Boston, 21 cases, 2 deaths; Chelsea, 1 case; Lawrence, 2 cases; Malden, 1 case; Newton, 1 death; Taunton, 3 cases.
Michigan: Detroit, Nov. 29-Dec. 13, 68 cases; Grand Rapids, Dec. 6-13, 9 cases.
Missouri: St. Louis, Nov. 30-Dec. 7, 40 cases.
Nebraska: Omaha, Dec. 6-13, 3 cases.
New Hampshire: Nashua, Dec. 6-13, 20 cases.
New Jersey: Newark, Dec. 6-13, 1 case.
New York: Dec. 6-13, Binghamton, 1 case; Buffalo, 1 case; New York, 7 cases.
Ohio: Cincinnati, Dec. 5-12, 2 cases; Cleveland, Dec. 6-13, 11 cases, 5 deaths.
Pennsylvania: Altoona, Dec. 6-13, 14 cases; Erie, Dec. 6-13, 3 cases; Johnstown, Nov. 22-Dec. 13, 12 cases, 2 deaths; McKeesport, Dec. 6-13, 1 case; Philadelphia, Dec. 6-13, 4 cases, 2 deaths; Pittsburg, Dec. 6-13, 20 cases, 9 deaths.
Utah: Salt Lake City, Nov. 29-Dec. 13, 12 cases; 3 cases imported.
Washington: Tacoma, Nov. 30-Dec. 7, 1 case.

SMALLPOX—FOREIGN.

Canada: Quebec, Dec. 6-13, 1 case.
France: Rheims, Nov. 23-30, 1 death.
Great Britain: Bradford, Nov. 15-29, 38 cases; Dundee, Nov. 22-29, 2 cases; Manchester, Nov. 22-29, 1 case; Sheffield, Nov. 15-29, 9 cases.
India: Bombay, Nov. 11-18, 1 death.
Italy: Naples, Nov. 24-Dec. 1, 2 cases; Palermo, Nov. 15-22, 3 cases.
Mexico: Mexico, Nov. 23-30, 1 case, 1 death.
Russia: Odessa, Nov. 15-22, 2 cases, 1 death; St. Petersburg, Nov. 15-22, 7 cases, 2 deaths.
Straits Settlements: Singapore, Oct. 25-Nov. 1, 2 deaths.
Uruguay: Montevideo, Oct. 23-30, 11 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, Nov. 1-8, 4 deaths.
Colombia: Panama, Dec. 1-8, 5 cases, 2 deaths.
Costa Rica: Port Limon, Nov. 29-Dec. 6, 4 cases, 3 deaths.
Mexico: Tampico, Nov. 30-Dec. 7, 18 deaths; Vera Cruz, Nov. 29-Dec. 6, 12 cases, 3 deaths.

CHOLERA.

China: Hongkong, Oct. 18-25, 1 case, 1 death.
Egypt: Alexandria, Nov. 8-22, 39 cases, 35 deaths.
India: Calcutta, Nov. 8-15, 24 deaths.
Straits Settlements: Singapore, Oct. 24-Nov. 1, 19 deaths.

PLAGUE.

Brazil: Rio de Janeiro, Nov. 1-8, 5 deaths.
China: Hongkong, Oct. 18-25, 1 case, 1 death.
Egypt: Alexandria, Nov. 8-22, 1 case.
India: Bombay, Nov. 11-18, 134 deaths; Calcutta, Nov. 8-15, 6 deaths.
India: Karachi, Nov. 9-16, 10 cases, 6 deaths.
Straits Settlements: Singapore, Oct. 25-Nov. 1, 1 case, 1 death.